

THE AMERICAN
SECONDARY SCHOOL

KOOS



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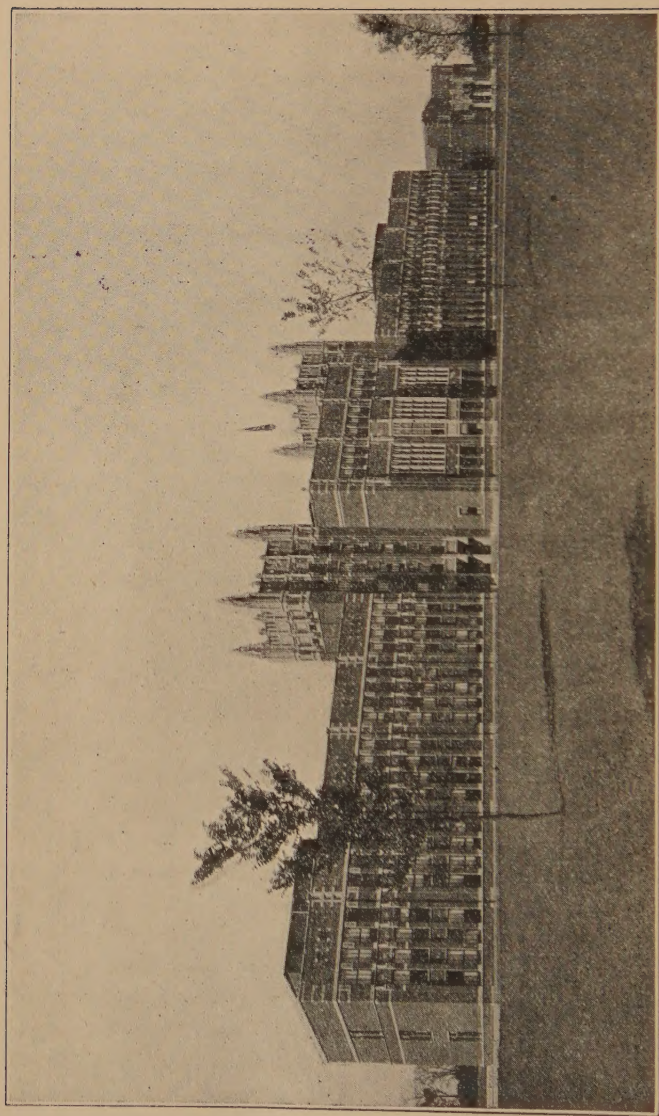
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THE AMERICAN SECONDARY SCHOOL

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BY

LEONARD V. KOOS

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OF "THE JUNIOR HIGH SCHOOL," "THE JUNIOR-COLLEGE MOVEMENT," "THE HIGH-SCHOOL PRINCIPAL," ETC.



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PREFACE

This book has been prepared as a basic treatise on American secondary education as a whole, just as "The Junior High School, Enlarged Edition," and "The Junior-College Movement" are intended as basic treatises of the two recent major innovations in American secondary-school organization. Through these three books the author has endeavored to provide a comprehensive fundamental treatment of this division of our educational system. Other books now in the field which "The American Secondary School" most nearly resembles are those usually bearing the name "principles of secondary education." This work is, however, more inclusive than are those bearing this title, the widened scope being achieved without enlarging the volume and also, it is hoped, without sacrificing fundamental phases of topics ordinarily dealt with in books of this kind. Among the topics treated to which it has not been customary to accord more than minor consideration, if they are treated at all, are the secondary-school organization as it relates to size and distribution of high schools, rural secondary education, vocational education, and other types of secondary education; adaptations to differences in ability among pupils; educational and vocational guidance; allied (extra-curricular) activities; community relationships; problems relating to the teaching staff; the school plant and costs. The judgment is ventured that a basic treatise on secondary education is not complete unless it deals with these as well as with topics usually included, namely, the history of secondary education, pupils, aims, relationships to schools above and below, reorganizations like the junior high school and junior college, European secondary education, and the curriculum.

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The differences between this and other treatises in the field do not relate solely to scope. There are differences also in the nature of treatment and in organization. The intent has been to afford both a fairly complete picture of the present secondary-school situation and of the trends or dynamics of secondary education. To this end, there is a substantial ballast of fact disclosing the present practices and opinions and recent shifts with respect to them. To facilitate the interpretation of these facts there is frequent resort to graphic methods of representation. Much thought has been given to the organization of the content, with the aim of transmitting to the reader a coherent and systematic understanding of the whole subject. The organization is well illustrated in the sequence of chapters. The book begins with a brief treatment of the development of American secondary education; it proceeds with a consideration of the pupil, then of the purposes of secondary education and its relationships to elementary and to higher education, and then of the organization of secondary schools, the curriculum, guidance, and the extra-curriculum; the final chapters turn to the problems of the staff responsible for carrying on the work, and to material considerations; that is, the plant in which the work is carried on and the financial responsibilities involved. The effort at effective organization has also been extended to the content within the chapters. This may be illustrated in the distribution of materials pertaining to European education. These have been placed, not in separate chapters where they are customarily found, but at points within related chapters where significant contrasts and similarities with our own schools will be made more apparent and therefore more functional in the reader's understanding of secondary-school problems.

"The American Secondary School" is intended as a textbook in courses in "secondary education," or principles of secondary education, in colleges, teachers' colleges, and uni-

PREFACE

versities. Most of the materials in it have been put to the test of classroom use with more than fifteen hundred students taking such a course in the University of Minnesota. Its preparation as a basic treatise in the field should make it serviceable also for individual readers who desire to secure a comprehensive view of the secondary school, for high-school teachers' meetings, and for reading circles where a volume is needed for those at work in schools on this level.

Among those who contributed most to the volume by helpful criticism while making use of the materials in instruction or otherwise are Professors J. Orin Powers, Percival W. Hutson, and James M. Hughes, at this writing respectively of George Washington University, the University of Pittsburgh, and Northwestern University; Dean Oliver L. Troxel of the Municipal University of Wichita, Kansas; Mr. Grayson N. Kefauver, instructor in secondary education in the University of Minnesota; and Mr. Charles W. Boardman, principal of the University High School, University of Minnesota. Professor Fred Engelhardt of the University of Minnesota has made helpful suggestions at many points, but especially concerning the chapter on plant and costs.

Acknowledgment is made of the courtesy of authors and publishers in permitting the making of quotations which contribute materially to any claim to merit the book may have. The writer is under obligation for privilege to quote from books and monographs published by the Bruce Publishing Company, The Century Co., D. Appleton and Company, Funk & Wagnalls Company, Ginn and Company, Houghton Mifflin Company, The Macmillan Company, and Public School Publishing Company; from monographs and bulletins issued by the Department of Education of The University of Chicago; Teachers College, Columbia University; the University of Iowa; the University of Minnesota; the University of Wisconsin; the Board of Education, Denver, Colorado; from *Research Bulletins* of the National

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Education Association; from Yearbooks of the National Society for the Study of Education; and from a book privately published by its author, Dr. Walter J. Gifford. Educational and other periodicals from which materials have been drawn are the *American Journal of Psychology*, *American School Board Journal*, *Educational Administration and Supervision*, *Educational Research Bulletin* (of the Ohio State University), *Educational Review*, *Elementary School Journal*, *English Journal*, *General Science Quarterly*, *Journal of Educational Psychology*, *Journal of Educational Research*, *Journal of Home Economics*, *New Republic*, *School and Society*, *School Review*, and *Teachers College Record*. Full reference to the sources drawn upon is usually given at the ends of the chapters in which quotations are made; the use of the Arabic and Roman numerals in cross references is explained after the manner of reference described in the footnote on page 1 of this book.

Drawings for the many figures were prepared in the Medical Art Shop of the University of Minnesota.

LEONARD V. KOOS

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THE AMERICAN SECONDARY SCHOOL

I

THE DEVELOPMENT OF AMERICAN SECONDARY EDUCATION

I. RECENT RAPID GROWTH IN AMERICAN SECONDARY EDUCATION

Two major concerns of the chapter. In a general volume purporting to deal with American secondary schools in a comprehensive way, it is desirable to give early some notion of their present scope. This can best be done, it is believed, by setting forth and considering facts pertaining to their recent growth. This concluded, it will be appropriate to enter upon a treatment of the educational background out of which the present secondary-school situation has developed. The first chapter, therefore, is concerned with (1) the recent growth of present-day secondary education in this country and (2) its background.

The remarkable recent growth in numbers. The recent rapid growth of our secondary schools is a matter of frequent comment. Not, however, until one tries to put the growth in definite numerical terms does its astounding nature become

NOTE. In this text Arabic numerals in parenthesis refer to items in the Selected References at the end of each chapter. Roman numerals in parenthesis preceding the Arabic numerals refer to the chapter in this book to which the reference is appended.

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apparent. If the beginning point of the recent period over which the development is to be studied is 1890 and the subsequent points for consideration are a decade apart up to 1920, the number of public high schools reporting to the United States Bureau of Education is seen (Table I) to have mounted from approximately 2500 in the first period to

TABLE I. NUMBER OF PUBLIC AND PRIVATE SECONDARY SCHOOLS, INSTRUCTORS, AND PUPILS ENROLLED FROM 1889-1890 TO 1919-1920 ¹

CLASSES OF SECONDARY SCHOOLS AND ITEMS	1889-1890	1899-1900	1909-1910	1919-1920
Public high schools				
Number of schools re- porting	2,526	6,005	10,213	14,326
Number of instructors .	9,120	20,372	41,667	63,258
Number of pupils . . .	202,963	519,251	915,061	1,857,155
Private high schools and academies				
Number of schools re- porting	1,632	1,978	1,781	2,093
Number of instructors .	7,209	10,117	11,146	14,946
Number of pupils . . .	94,931	110,797	117,400	184,153
All secondary schools				
Number of schools re- porting	4,158	7,983	11,994	16,419
Number of instructors .	16,329	30,489	52,813	78,204
Number of pupils . . .	297,894	630,048	1,032,461	2,041,308

approximately 6000 by 1899-1900, to over 10,000 by 1909-1910, and to more than 14,000 by the close of the period considered. The number of teachers in these schools increased from more than 9000 at the opening to well over 63,000 — about seven times as many — at the close of the thirty-year period. The most astonishing proportionate increase is in the number of pupils, which in the three decades climbed from 202,963 to 1,857,155 — more than nine times as many

¹ From Table 1 in "Statistics of Public High Schools, 1921-1922," *United States Bureau of Education Bulletin No. 7* (1924), p. 2, and Table 1 in "Statistics of Private High Schools and Academies," *United States Bureau of Education Bulletin No. 60* (1923), p. 11.

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at the end as at the beginning of the period considered! For the school year 1921-1922 the total enrollment in public high schools was 2,229,407.

The increase for the thirty-year period for private secondary schools reporting was as follows: in number of schools, from 1632 to 2093; in number of teachers, from 7209 to 14,946; and in number of pupils, from 94,931 to 184,153. For *all* schools, public and private, the increase in number of pupils mounted from somewhat less than 300,000 to more than 2,000,000.

The growth as compared with the growth of the total population and the growth in higher education. Although the gross figures just cited are impressive, comparisons with the increases in total population and in enrollment in higher education are much more so. Such a comparison has been made available by the Bureau of Education, and the results are reproduced in Fig. 1, in which the index numbers were arrived at by dividing the population or enrollment for some year under consideration, say 1902, by that for 1890, the initial year for the computations made. Thus the index number for any year is the percentage which the population or enrollment in that year is of the population or enrollment in 1890.

The rapid increase of our population during the period considered is a matter of frequent comment and wonder. The same may be said for the growth of enrollment in higher institutions, which is here seen to be much more rapid than the population. But the increase is even more marked for enrollment in secondary institutions, manifesting, indeed, a notable acceleration.

The extent of gain on the population. A more accurate measure of the gain on the population is afforded by a computation of the percentages of that portion of the population fourteen to seventeen years of age, inclusive, represented by those enrolled in secondary schools (Fig. 2). The use of this as a measure of the extent of popularization of secondary

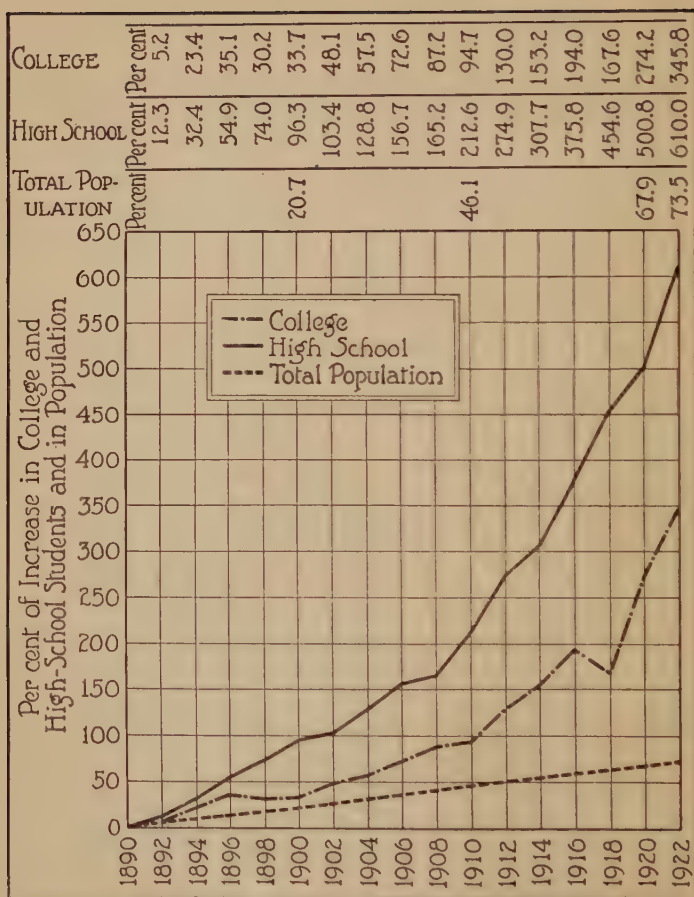


FIG. 1. Percentages of increase in the United States of the total population, high-school enrollment, and college enrollment. (After Fig. 1 in Frank M. Phillips's "Statistical Survey of Education, 1921-1922," *United States Bureau of Education Bulletin No. 38* (1924), p. 8)

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education is preferable to the figures frequently used, — the number in a thousand of the population represented by the secondary-school enrollment, — because it shows the approximate proportion of those of normal age for the four high-school grades who are in high school. These percentages

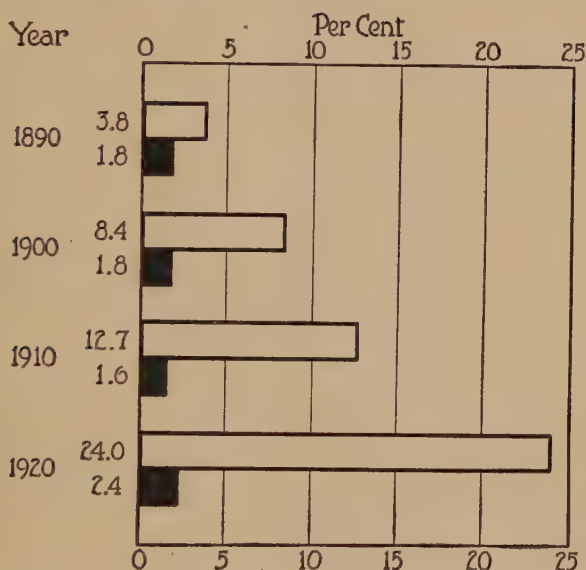


FIG. 2. Percentages of population of the United States from fourteen to seventeen years of age in 1890, 1900, 1910, and 1920, represented by the enrollment in public and private secondary schools. (In outline, public high schools; black, private high schools and academies)

for public high schools for the census years used (1890, 1900, 1910, and 1920) are, respectively, 3.8, 8.4, 12.7, and 24.0; for private high schools and academies, 1.8, 1.8, 1.6, and 2.4; for *all* secondary schools, 5.6, 10.2, 14.3, and 26.4. They portray a remarkably rapid popularization during the thirty-year period represented, for public high schools and for all secondary schools.

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It must be borne in mind that, because of the difficulty of securing reports from all schools, the computations are conservative; if all schools had reported, the percentages would all have been larger — by how much it is impossible to state with complete accuracy. Some suggestion of the extent of discrepancy may be obtained by comparing for the year 1921-1922 the figures on enrollment in public high schools as already cited on a preceding page with those published by the United States Bureau of Education as being reported to it by state departments of education. In the former case the number was 2,229,407 and in the latter, 2,873,009.¹ The difference is largely attributable to the fact that the state departments secure reports from a larger number of schools than does the Bureau of Education, to which local school authorities do not so much feel the obligation to submit the data requested. If to this larger enrollment is added that in private secondary schools for the same year, the total in all secondary schools is seen to have been well over 3,000,000. When the enrollments in public high schools as gathered in these two ways are turned into percentages of the population normal for the four high-school years, they become approximately 28.4 and 36.6, disclosing a difference between the two bases of 8.2 per cent of the population fourteen to seventeen years of age, inclusive. A similar computation for public high schools on the latter basis for 1923-1924 gives an approximation of 38.8 per cent. If to these are added the figures on private secondary schools for the same year, this percentage would run well over 40 per cent of all children of these ages.

An era of public secondary education. It is obvious from the materials already canvassed that the growth we have seen is for the most part restricted to public high schools. Just how large this dominance of public schools is may be seen in the percentages of all public secondary schools and of all secondary-school pupils in public schools for the year-points

¹ Table 1, *United States Bureau of Education Bulletin No. 31* (1924), p. 2.

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used in presenting the foregoing data (Fig. 3). The proportion of public secondary schools to the total of all secondary schools reporting to the Bureau of Education rises from 60.8 per cent for 1889-1890 to 75.2, 85.2, and 87.3 per cent at the end of the three ten-year periods. The percentage of pupils who are in public high schools mounts from 68.1

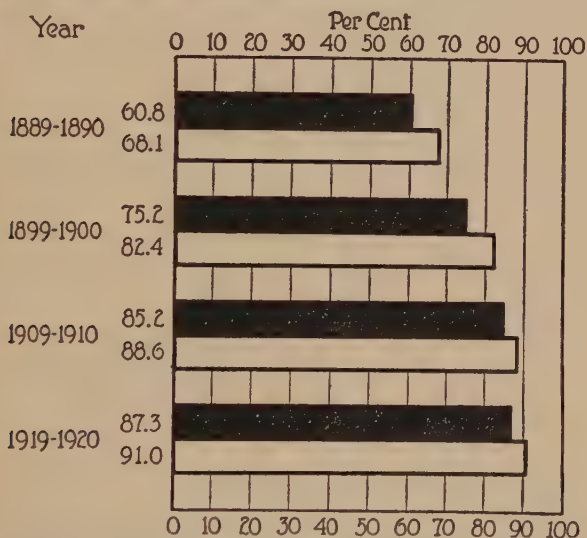


FIG. 3. Percentage ratios of public high schools and pupils enrolled in them to all secondary schools and secondary-school pupils reported.¹
(Black, percentage of schools ; in outline, percentage of pupils)

at the opening to 91.0 at the end of the thirty years. The percentages continued to rise after 1920, since in 1921-1922 the percentage for schools was 87.7 and for pupils, 92.3. The whole period was one not only of public-high-school dominance, but of *increasing* public-high-school dominance. We are in an era of public secondary education.

Interest should attach to some special consideration of the status in recent years as to number of private high schools

¹ Table 1, *United States Bureau of Education Bulletin No. 7* (1924), p. 2.

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and academies and as to enrollment in them. When grouped under Roman Catholic, other denominational, or nonsectarian auspices, the only group showing any growth in number of schools is the first-named, which increased during 1895 and 1922 from 280 to 949. Schools of all other denominations considered as a group show an appreciable decline in number, albeit data for particular denominations within this large group experienced minor accretions. The nonsectarian group experienced a large decline.

TABLE II. NUMBER OF HIGH SCHOOLS AND ACADEMIES UNDER ROMAN CATHOLIC, OTHER DENOMINATIONAL, AND NONSECTARIAN AUSPICES, AND NUMBER OF PUPILS IN THESE SCHOOLS IN 1895 AND 1922¹

DENOMINATION	SCHOOLS		PUPILS	
	1895	1922	1895	1922
Roman Catholic	280	949	12,777	87,049
Other denominations	630	494	39,664	48,285
Nonsectarian	1270	520	65,906	51,307
<i>Total</i>	2180	1963	118,347	186,641

The data on enrollment conform somewhat to tendencies in number of schools, the differences being that the schools of "other denominations" show a small amount of growth, and that the nonsectarian schools declined less in enrollment than might be anticipated from the large decline in the number of institutions. Examination of tabulations year by year (not reproduced here) indicates that the most pronounced period of development of schools under Roman Catholic control began about 1909-1910, and has continued until the last year for which data are available. In fact, the growth was so pronounced as to lead to the inference that it resulted from putting in operation a vigorous program of expansion which has been carried on over a period of years. Were it not for the

¹ Adapted from Tables 1 and 2, *United States Bureau of Education Bulletin No. 60* (1923), pp. 1-2.

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growth in this single denomination the increases shown for public high schools would have been even larger than the data so far cited have represented them to be.

While it has not universal validity, a generalization which may be assumed to be in large part applicable is that denominationalism is a chief factor in the persistence of private secondary education, and that it is most effectively operative with Roman Catholics.

Comparison with degrees of popularization in other countries. It is not infrequently stated that the rapid growth of secondary education and the degree of its popularization attained in this country have never been equaled in any other place and time. The statement is in all likelihood true, although it is so sweeping that to substantiate it unequivocally would require much more time than has yet been devoted to this type of investigation. The most significant study in this connection is one by Byrne, in which he reports for a number of countries what percentages the "four-year enrollments" were of "four-year age-populations."¹ In essence, his method was (1) the computation of percentages for the United States for a number of years, such as those already reported above; that is, percentages which the four-year high-school enrollments are of the age-populations normal for the grades concerned, and (2) the computation of analogous percentages for analogous four-year groups in other countries. Such a study is hedged about by so many limitations in the kind and amount of data at hand that one can readily agree with Byrne that the percentages derived, especially for the foreign countries, cannot be regarded as accurate; but they are sufficiently dependable to be reproduced here (Table III). The dates introduced are those of the estimated four-year age-populations. The dates for the enrollment figures for the foreign countries did not always correspond with those of the United States, but were seldom more than a year or two displaced.

¹ Lee Byrne (4).

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In qualification and interpretation of these figures we shall do well to follow Byrne:

Before trying to interpret this array some qualifications should be made. Calculations for Germany and France are based on definite facts. . . . Those for England and Wales and several countries are more conjectural. In general the European figures probably represent the situation in the dominant types of schools and not all the schools. . . .

TABLE III. THE PERCENTAGES¹ FOR THE UNITED STATES AND CERTAIN FOREIGN COUNTRIES OF FOUR-YEAR AGE-POPULATION REPRESENTED BY THE FOUR-YEAR ENROLLMENT

NATION	PER CENT	NATION	PER CENT
United States, 1870	2.7	Germany, 1910	1.7
United States, 1890	4.2 ²	Austria, 1912	2.0
United States, 1911	13.8	Hungary, 1910	1.5
United States, 1912	15.2	Switzerland, 1912	2.2
United States, 1913	15.3	Netherlands, 1913	2.6
United States, 1914	16.2	Denmark, 1911	5.4
United States, 1915	17.4	Norway, 1910	4.5
England and Wales, 1915	3.9	Sweden, 1914	1.4
Scotland, 1914	9.1	Italy, 1914	0.7
Ireland, 1914	4.3	Spain, 1910	1.1
France, 1911	2.4	Russia, 1911	1.3
Belgium, 1912	2.5	Japan, 1912	1.8

Considerable additions could probably be made for industrial and commercial schools of secondary grade in central European countries. This addition would be largest for Germany; possibly it would double the German figures, and Sweden seems to approximate the educational situation of Germany. Moreover, European countries do more for their boys than their girls, and a comparison based on boys alone would give Europe a better showing. . . .

But, when all is said and every possible allowance is made, the contrast with the United States is startling. However efficient

¹ Byrne refers to these as "ratios of four-year enrollment to four-year population," but his description of the method of computation used justifies referring to them as percentages. See Byrne (4), p. 327.

² The small discrepancy between this percentage and that reported for 1890 in Fig. 2 is owing to a somewhat different use of basic data.

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the German secondary schools may have been in what they did, they could not have been enrolling more than a fourth as large a proportion of the people at the time of their latest reports as was the United States. Germany was admittedly autocratic and did not desire advanced education for the masses. But France, with its republican form of government, has never had democratic education either. England in 1915 was about where we were in 1890 as regards secondary-school enrollments. . . . *We may well believe that all the European countries are moving educationally in the direction in which we have gone but that they are roughly half a century behind us in the particular aspect of educational conditions examined . . . viz.: that degree of socialization [popularization] of education that is reflected in the proportion of people getting secondary education.*¹

The meaning of the influx for the secondary school. The recent popularization of American secondary education is widely meaningful from the standpoint of its significance for the secondary schools themselves and the service they are called upon to render, as well as from the standpoint of the forces that have been at work to bring on the influx. Various attempts have been made to explain both. A helpful presentation of the main points of significance for the secondary school was given by Inglis, who, after calling attention to the remarkable increase, said :

First of all, it means that a much larger proportion of our citizenry is receiving some amount and kind of secondary education, and presumably that the average level of trained intelligence has been raised measurably within the past quarter of a century. Second, it means that the group of pupils now attending the secondary school constitutes a far more heterogeneous body in capacities, economic or social status, and educational needs than was the secondary school clientele of 1890 or 1900. Third, it means that new and diversified demands have been made on the secondary school. Fourth, it means that the problems of financial support have become increasingly important and difficult. Fifth, it means that within a very short space of time the secondary

¹ Byrne (4), pp. 327-328. The italics are the present writer's.

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school has had to make many important and difficult adjustments — demands which could not be met adequately within the brief period of such an extraordinary development. It may safely be prophesied that it will take at least a generation to meet at all adequately adjustments already demanded by the changed character of the secondary school clientele.¹

The influx and the mentality of high-school pupils. We are probably correct in inferring from the statement of the second type of effects as pointed out by Inglis that he believed that the high school is not as selective as was formerly the case — that larger proportions of those of average mentality or less are finding their way into secondary-school grades. This belief is frequently met with in the literature of secondary education and is often heard discussed among those at work in our high schools. For instance, Byrne makes a good deal of it in the article from which we have already quoted.² Keener is quoted in Chapter III as being convinced of a similar trend. The field of mental testing has been developed too recently to make it possible to authenticate this common belief by comparing intelligence-test scores, mental ages, or intelligence quotients of pupils of twenty or thirty years ago with those of today. The best that can be done is to draw upon the results of a statistical estimate by Thorndike of the influence of the recent popularization of education on the quality of pupils entering high school. His special problem was this change as it affected the pupils' ability to learn algebra. He first found that whereas in 1890 only one child in ten reaching their teens in the United States entered high school, by 1918 this proportion had been increased to almost one in three. Assuming, on the basis of earlier investigations, a coefficient of correlation of 0.70 between native capacity and continuance in school, he computed the "distribution of intellect in 1,000 pupils of the first year of high school accord-

¹ Alexander J. Inglis in I. L. Kandel (16), pp. 253-254.

² Byrne (4), pp. 328-329.

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ing as one in ten or one in three enters high school." His findings, illustrated by the following quotation, show *markedly different distributions* of intellect for the two degrees of popularization¹:

In the former case [one in ten entering high school], 95 per cent of the pupils . . . will be above average in native intellectual capacity; in the latter case [one in three], only 83 per cent. In the former case, seven tenths of the pupils will be in the top fifth of human beings for intellect; in the latter case, only four and one-half tenths. . . .¹

The influences toward popularization. Nothing less than profound social influences could result in the astounding popularization of secondary education which has been described. These will to some degree stand out in the background of the present situation in American secondary education, to be sketched in the next section of the chapter, but it seems pertinent to mention a number of them here. Unquestionably some of the influx has resulted from changes in the cultural traditions of our people and from an increased consciousness of the rather intimate dependence of the cultural level attained on the extent of attendance on educational institutions. Doubtless American individualism has been at work to some extent in the partly selfish desire of parents to secure for their children the social and economic benefits accruing from higher training. But the expansion of secondary-school facilities, which makes this level of education more generally available, is far from prompted by this selfish motive alone: it has resulted also from a conviction among us that the type of political institution for which we stand calls for an intelligent citizenry, and that such a citizenry is not attained without the facilities to achieve it. The popularization must also have been brought about by our increasing affluence both as a nation and as individuals. In a later chapter lack of educational traditions and low economic status are established as

¹ Edward L. Thorndike (28), pp. 357-358.

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factors of elimination. If the influence of these factors is offset, increased influx must follow. Other influences are the steady drift toward urban life, and the improvement of roads and other facilities for transportation. Last to be mentioned is the influence of enriched curricula, better suited to the widening range of capacity and interest represented in those enrolled. This is in effect a reciprocal influence, since these broadened curricula are themselves also a result of the popularization.¹

It is only natural that from time to time, on account of the vast outlay already involved and the even vaster drain on resources called for by an impending further popularization, someone raises in emphatic terms the question of whether we ought to go forward with the program either in its present form or in its logical conclusion of complete popularization of secondary education. In the main, however, the populace, when asked to decide upon the question of taking another step in outlay, has responded affirmatively. Nevertheless it is essential that as a people we hold to our faith in the importance of a popularized secondary education, appreciating both its meaning and its responsibilities. No one has set forth in better form than Judd this need for a common appreciation of the significance of a free secondary school :²

What the American people need at this time is a new insight into the essentials of their democratic society. America has undertaken to set up a new social system. It has taken generations to bring about a partial disruption of European traditions. The traditions of that older form of society dictate that a part and only a part of the people shall have a higher education. The older civilization has bequeathed to us also an industrial system which calls for a certain number of people who are to do the hard work of the world. This industrial system makes its distinctions among people in terms of leisure and wealth and consequent opportunity to take on a higher education. Our democracy still

¹ (III) (6), p. 444.

² Charles H. Judd (14), pp. 100-102.

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retains many of the older industrial institutions, but has said with regard to higher education, "This is a common good; this shall be made accessible to all." This idea is beginning to penetrate the thinking of our new society. In recent years it has spread with astonishing celerity. Today we are forced to look at the consequences of our new theory. The high school is crowded with all kinds of pupils demanding their share in the new social order. The taxpayer finds that the industrial system is not ready to bear in its accustomed ways the cost of this new social order, and the public begins to be restless about an institution which it only vaguely understands. . . . The cure for the present situation is not easy to secure. It may be too hopeful to believe that Americans can be convinced of the gravity of the matter, even if they are told in plain terms. Perhaps we shall have to live on patiently until one after another of our institutions come to a crisis. Perhaps we shall have to wreck some more of our hopes and waste more human life before we work out the experiment which we are blindly carrying forward. Perhaps it is futile to ask high-school officers to undertake the responsibility of adding to their other duties an exposition of the true purpose of a system of free high schools. If so, there may be an escape from complete despair. The high school has survived thus far and on the whole has broadened its scope in spite of general ignorance of its full value to American life. Probably in the process of human evolution a way will appear to save that which is good in this institution, even if no one takes up the task of representing it. It is worth trying, however, to make the effort to interest high-school teachers and principals in a new branch of education, namely, the training of communities to understand how unique the American higher education is. . . .

II. THE FOUR HISTORICAL TYPES OF SECONDARY SCHOOLS

THE RAPID SUCCESSION OF TYPES

A period of rapid social change. The last few centuries have wrought rapid and profound social changes in most parts of the world. These changes have been especially marked in a country like our own, of large areas and resources, only recently occupied by the race now dominating it, and (because

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of a new environment) with traditions more readily modifiable than in the older-settled sections of the earth. Ever since our earliest permanent colonization, political, social, and economic changes have been swift and far-reaching. Educational institutions are, like others, a part of the social whole, and are bound on this account to be adjusted to the social development of the period. It was to be expected, therefore, that our educational institutions, inclusive of that portion designated as secondary, should undergo rapid change during the period under consideration.

The succession of types of secondary schools. In view of the relatively short span covered by our history since early colonial days — scarcely three centuries — our types of secondary school may be understood to have followed each other in relatively swift succession. They are four in number : (A) the Latin grammar school, (B) the academy, (C) the public high school, and (D) the extended secondary school. Treatments of the history of American secondary education are conventionally restricted to the first three ; but the addition of the fourth is now highly justified, not only by the inevitability of extension by including in the secondary school grades below or above, or both, but also by the number of such reorganizations actually achieved along these lines. The remainder of the chapter will deal briefly with each of these four types.

A. *The Latin Grammar School*¹

Beginnings in New England. It was only natural that in moving to a new continent the colonists should endeavor to transplant the institutions with which they had been ac-

¹ This brief treatment of the Latin grammar school, the academy, and the public high school is based chiefly on the following items in the Selected References at the close of the chapter : Elmer E. Brown (2), Walter J. Gifford (8), Emit D. Grizzell (10), Alexander J. Inglis (12), and John E. Stout (27). Most of the other references listed at the end of the chapter have influenced the treatment to some extent, both in specific and general ways ; some of them have been quoted directly.

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quainted in England. The first secondary schools to be established were, in consequence, what were known as Latin grammar schools, which had their prototypes in England as well as in continental Europe. The first reported effort to establish such a school was in Virginia (1621), but because of an Indian massacre it never came into being. It was left for the early settlers of Massachusetts to bring the first school into actual operation. The first secondary school in America, as far as we have information, was the Public Latin School, established in Boston in 1635. It was established by the town, and fees were charged for its maintenance. Its aim was to prepare boys for college; its curriculum, like the Latin grammar schools of England, was exclusively Latin and Greek, this work extending through four "classes," or years.

The earliest-known general legislation concerning secondary education was also enacted by the Massachusetts Bay Colony. In 1647 the General Court passed what is now often referred to as the "old deluder" law, which was cast in the following form, now interestingly quaint: ¹

It being one cheife piect of y^t ould deluder, Satan, to keep men from the knowledge of y^e Scriptures, as in form^r times by keeping y^m in an unknowne tongue, so in these latt^r times by pswading from y^e use of tongues, y^t so at least y^e true sence & meaning of y^e originall might be clouded by false glosses of saint seeming deceivers, y^t learning may not be buried in y^e grave of or fath^{rs} in y^e church & co^monwealth, the Lord assisting or endeavors, —

It is therefore ord^{red}, y^t ev^{ry} towneship in this iurisdiction, aftr y^e Lord hath increased y^m to y^e number of 50 house hold^{rs}, shall then forthwth appoint one wthin their towne to teach all such children as shall resort to him to write and reade, whose wages shall be paid eith^r by y^e parents or mast^{rs} of such children, or by y^e inhabitants in gena^ll, by way of supply, as y^e maior p^t of those y^t ord^r y^e prudentials of y^e towne shall appoint; p^{ro}vided, those y^t send their children be not oppressed by paying

¹ Records of the Governor and Company of the Massachusetts Bay in New England, Vol. II, p. 203. Press of William Little, Boston, 1853. 344 pp.

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much more yⁿ they can have y^m taught for in oth^r townes; & it is furth^r ordered, y^t where any towne shall increase to y^e numb^r of 100 families or household^r, they shall set up a gram^{er} schoole, y^e m^r thereof being able to instruct youth so farr as they may be fited for y^e university, p^{ro}vided, y^t if any towne neglect y^e p^{er}formance hereof above one yeare, y^t every such towne shall pay 5£ to y^e next schole till they shall p^{er}forme this order.

For the history of secondary education the most significant part of the quotation is the latter portion of the second paragraph, making compulsory for the towns of the colony having a hundred or more families, or householders, the establishment of a grammar school the announced purpose of which was preparation for higher education. The law was somewhat modified from time to time up to 1827 (when it was displaced by a law pertaining to high schools), but the requirement to provide the school was not removed. A law similar to that passed by the Massachusetts Colony in 1647 was not long afterwards (1650) enacted by Connecticut.

From towns reported by two investigators (W. H. Small and M. W. Jernegan) Grizzell makes up a list of forty Latin grammar schools established in New England before 1700, nineteen of these being in Massachusetts Bay Colony before 1692, six in Plymouth Colony before 1692, five in Massachusetts after 1692, seven in Connecticut, two in New Hampshire, and one in Rhode Island. They were to be found in practically all the larger towns of New England.¹

In other colonies. In no other colony was there as early or as vigorous a development of secondary education as in Massachusetts or Connecticut. In almost all the colonies south of New England there were occasional examples of schools conforming more or less closely to the grammar-school type, but anything like a comprehensive program was not instituted. In New York it was not until after the opening of the eighteenth century that attempts were made to foster

¹ Grizzell (10), pp. 7-8, Table I.

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Latin grammar schools as public institutions in the same sense that the term is usable for Massachusetts, and these attempts did not produce results in any way comparable with those in Massachusetts. In 1689 William Penn ordered the establishment of a public grammar school in Philadelphia, which later became known as the William Penn Charter School. There were developments in most of the remaining colonies, some of them warranting the designation "public" to the same degree as applied in New England, others not. Development of secondary education in certain Southern colonies was retarded more than elsewhere, in part by the scattered distribution of the plantation population.

The aim and the curriculum. The college preparatory function of the Boston Public Latin School has already been noted. The "old deluder" law, as has been seen, also decreed that the master of the grammar schools should be "able to instruct youth so far as they may be fitted for the university." Public service to country, in church and commonwealth, was less often mentioned. Even though researches have not yet uncovered the outline of any of the earliest grammar-school curricula, it is easy to conjecture their nature because over a long period the requirements for admission to college were stated in terms of Latin and Greek. The earliest available organization is one adopted for the Boston Public Latin School in 1789, whose restriction to the classic languages and literatures is at once perceived: ¹

1st Class — Cheever's *Accidence*. Corderius's *Colloquies* — Latin and English. Nomenclator, Æsop's *Fables* — Latin and English. Ward's *Latin Grammar* or *Eutropius*.

2d Class — Clarke's *Introduction* — Latin and English. Ward's *Latin Grammar*. Eutropius, continued, *Selectae e Veteri Testamento Historiae*, or, Castilio's *Dialogues*. The *Making of Latin* from Garretson's *Exercises*.

¹ Quoted by Grizzell (10), p. 13, from Henry F. Jenks's "Catalogue of Boston Public Latin School," pp. 286 ff.

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3d Class — Cæsar's Commentaries. Tully's Epistles, or Offices. Ovid's Metamorphoses, Virgil. Greek Grammar. The Making of Latin from King's History of the Heathen Gods.

4th Class — Virgil, continued. Tully's Orations. Greek Testament. Horace, Homer, Gradus ad Parnassum. The Making of Latin, continued.

Latin is seen to have been studied through all four years; Greek through the last two only. Late in the history of the grammar schools additional subjects made their appearance, especially in the vernacular and in some branches of mathematics.

Control and support. Generalizing with respect to control and support, Grizzell says :¹

From the beginning and throughout the colonial period the public grammar school was everywhere [in New England], except in Connecticut, a town school. It was a public school in so far as it was subject to public control and was required by act of the colonial legislature. On the other hand, it did not generally receive public support to the extent that the public school of today is supported by public funds. . . . There were several methods of support that were employed. These methods varied in the different colonies and in the towns of the same colony.

One or more of these methods of support were employed: land grants by the colony to the town for school purposes, private subscriptions, bequests and donations, tuition, taxation, and income from public utilities such as fisheries.

B. The Academy

The earliest academy. The academy movement arose from the need of a secondary school broader in scope than that afforded through the restricted curriculum of the Latin grammar school. It had something in common with European tendencies, but was far from being as complete a transplantation as was its predecessor in American secondary education.

¹ Grizzell (10), pp. 19-20.

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As early as the 1740's Benjamin Franklin had advocated the establishment in Philadelphia of an institution which, when it began work in 1751, was the first American representative of the realist movement. It was called the Public Academy in the City of Philadelphia.¹

In his proposals for the academy Franklin had written :

As to their studies, it would be well if they could be taught *everything* that is useful, and *everything* that is ornamental. But art is long and their time is short. It is therefore proposed, that they learn those things that are likely to be *most useful* and *most ornamental*; regard being had to the several professions for which they are intended.²

All interested for divinity, should be taught the Latin and Greek; for physic, the Latin, Greek, and French; for law, the Latin and French; merchants, the French, German, and Spanish; and, though all should not be compelled to learn Latin, Greek, or the modern foreign languages, yet none that have an ardent desire to learn them should be refused; their English, arithmetic, and other studies absolutely necessary, being at the same time not neglected.³

Although when the academy was established it did not follow fully the lines mapped out by Franklin, it did provide for three "schools" — the Latin School, the English School, and the Mathematical School — and was clearly a type of institution different from any of its American predecessors.

The development in Massachusetts and other New England states. The academy movement in New England began with the establishment of Dummer Academy at Byfield in 1763 and of Phillips Academy at Andover in 1778, some years after the beginning of work in the Franklin academy. Both were privately controlled and endowed, the gifts to the latter from the Phillips family amounting to eighty-five thousand dol-

¹In 1779 this became the University of Pennsylvania.

²Jared Sparks, Works of Franklin, Vol. I, p. 572. Hilliard, Gray and Company, 1840.

³Ibid. p. 574.

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lars. The increase in number of academies in Massachusetts was summarized by Inglis as follows :¹

This institution, beginning in the last quarter of the eighteenth century, had grown in popularity until by 1820 thirty-six academies had been incorporated in the state and many others were doubtless in operation. By 1825 the number which had been incorporated was forty and within the years 1826-1830 twenty-eight more had been incorporated. Thus, by the beginning of the high-school movement, the academy had become an institution of far greater influence than the Latin grammar school.

The number of academies existing in all the New England states in 1830 was 168.² By 1850 it was 1007, of which 403 were reported for Massachusetts alone.³ Thus, the academy had a remarkable development in New England.

In other states. The rapid growth of academies in New England was paralleled in New York, where it was initiated and fostered by the Regents of the University of the State of New York. Here they "grew in numbers so rapidly that by 1820, 48 had been incorporated; by 1830, 48 more; and by 1840, 114 more; and by 1850, or contemporaneously with the first high schools, 76 more, a total of 286. Of these, somewhat more than one half were reporting in 1850 and perhaps a third had never been founded or were defunct. Even at that the growth in number of schools and pupils was truly phenomenal, as was also that in teaching staff and financial status."⁴

Without citing numerical data in proof, it may be said that the spread of the academy to other states and sections was much more general than had been that of the Latin grammar school, showing a marked development in the South and in what was then the new West, now known as the Middle West.

¹ Inglis (12), p. 150.

² *Quarterly Register and Journal of American Education Society*, Vol. II, p. 237.

³ Henry Barnard, *American Journal of Education*, Vol. I, p. 368.

⁴ Gifford (8), pp. 187-188.

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Aims and curriculum. The scope of the academy movement was much wider than that of its predecessor, the Latin grammar school. This has been well summarized by Grizzell :¹

The aim of secondary education as represented by the academy early became twofold: training for life and preparation for college. Although the aim of the early New England academy was influenced largely by religious motives, it was a broader conception of religion than that which influenced the Latin grammar school. The breadth of aim is seen also in the fact that all classes of people were served. Girls as well as boys found a place within its portals.

Inglis pointed out that higher education of girls was "practically unprovided for" during the colonial period, even in Massachusetts, and that the first of the academies to admit girls was Leicester Academy, opened in 1784 and, from the start, coeducational.²

The academies were also often looked on as sources of teachers for the lower schools, there being, during the period of early growth and rapid expansion of the academy movement, no teacher-training institutions as we know them.

As might be anticipated from the wider function, the curriculum was much broader than the restricted offering in the Latin grammar school. It included the classical and mathematical subjects, some modern languages (more frequently French and, less often, Spanish), and the general "English" subjects, such as literature, science, history, and a large number of others. Some notion of the astounding curricular expansion in the academy may be gained from the following generalization concerning offerings in the academies in New York, which locates also for one state the period of greatest curricular expansion :³

An intensive study of the curriculums of the reporting academies shows that of the 149 subjects [sometimes hardly more than topics] appearing in the years 1787-1870, 100 appear for

¹ Grizzell (10) p. 32.

² Inglis (12), p. 13.

³ Gifford (8), p. 20.

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the first time in the years 1826-1840 as against 23 in the years preceding and 26 in the years following, while of 28 occasionally appearing and irregular subjects, 17 enter the curriculums at this time. . . . Of the subjects that came in in this period of 15 years, those that attained a prevalency of 75 to 100 per cent include algebra, astronomy, botany, chemistry, geometry, general history, history of the United States, surveying, and mental (intellectual) philosophy, while the subjects that came to be taught in some twenty or more schools were elements of criticism, drawing, geology, law (and civics), mensuration, music (in 18 schools), natural history, physiology, and trigonometry. . . .

This expansion is so extensive as to encourage the inference, substantiated by some of the investigations, that the academies, overlapping the collegiate offerings as they did, were sometimes thought of as competitors not only of the Latin grammar schools but also of the colleges of that period. In some instances higher institutions developed out of what were first established as academies.

The length of the course varied, and there were differences in the length of the different courses, or "departments," even in the same academy, the English being shorter than the classical. This was probably because there was no understanding or tradition of articulation between the academies and the lower schools, and therefore the academies had to compensate for inadequacies of training in what are now regarded as common-school branches. Many of the earlier courses, however, were three or four years in length, and, as time passed, the four-year period seems to have become the norm of practice.

Support and control. The academies were controlled, as are the private colleges of today, by self-perpetuating boards of trustees. Sometimes these represented a religious organization, but the academy was much less distinctively denominational than the Latin grammar school. Perhaps a factor in this nondenominationalism was the difficulty of securing adequate financial support with the increasing subdi-

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vision of sectarian bodies. There was at the time, as Brown states, "a growing dissatisfaction with the prevalent sectarian strife."¹

This private control does not signify exclusively private support, however, although some academies depended exclusively on income from private endowment and from tuition fees. A number of academies were given grants of land, and during the rapid development of these institutions under the supervision of the Regents of the University of the State of New York, pending the time that the land grants made should become productive, they were the beneficiaries of legislative appropriations. This participation in public resources by institutions privately controlled is what has induced writers in the field to refer to the academy as a *quasi-public* institution. It made logical what later took place for some of these institutions — a shift to full public status as high schools.

An important determinant of the financial responsibility of an educational institution is its size. Although there were some academies with teaching staffs of good size and with large enrollments, most of them were small. The usual size of staff was one or two teachers, and the average number of pupils was from forty to fifty.

The contributions of the academy. In the light of our fundamental assumption that the nature of educational institutions reflects important social changes, it should be possible to relate this shift (from the Latin grammar school to the academy as the dominant type of secondary school) to significant social developments of the period included. The Latin grammar school was characteristic of the period of sway of the New England church. The disintegration of this dominance was certain to effect changes in an institution which had been obedient to it. Through the industrial development of the later colonial and early national periods a new and pros-

¹ Brown (2), p. 239.

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perous middle-class mercantile group arose for whom narrow classical training had little meaning. The new institution came in to serve the broader need represented by those who would enter occupational pursuits without going on to college, as well as those planning to continue their education. It was, in effect, an expression of expanding democracy. The specific contributions to school improvement made by the academy may be listed as (1) the more democratic service accompanied by (2) the broadened offering, (3) opportunities of secondary education for girls, (4) a place for the training of teachers for the lower schools, and (5) a secondary education less dominated by sectarian influences. In effect also, notwithstanding its private connections, it established a partial precedent of state support and responsibility for secondary education. Negative influences are sometimes mentioned, such as delay of the arrival of the state systems of free public high schools, the lack of democratization represented in the tuition charges made, and the like; but, on the whole, the academy represents a helpful *transitional* step in the development of American secondary education.

C. The Public High School

The first high schools. The most vigorous periods of the Latin grammar school and of the academy were much farther from being contemporaneous than those of the academy and the public high school. The first high schools therefore made their appearance long before the wane of the academy. It was left for Massachusetts, which has the honor of having initiated the grammar-school movement, to have established also the first public high school. It was known at first as the English Classical School and was founded in Boston in 1821. When the school was moved to new quarters in 1824, the name was recorded as the English High School. Beginnings in other states in New England were all but contemporaneous with those in Massachusetts. Except for the monitorial high

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schools in New York, to be referred to below, the first high schools in states outside of New England followed some years later: in Philadelphia in 1838 and in Baltimore and South Carolina in 1839. Early high schools in the Middle West appear to have been the Central High Schools of Cleveland and Columbus, Ohio, established in 1846. Boston is usually credited with having established the first high school for girls in 1826 (discontinued in 1828 and not reëstablished until 1852),¹ but Jones has challenged this by showing that Worcester had a "Female High School" as early as 1824.²

It is not easy to account fully for the origin of the term "high school." It is reported to have been used much earlier in Edinburgh, and Brown reports its use to some extent in Pennsylvania as early as the colonial period.³ The origin of the term is not so important, however, as its early general use in connection with *institutions offering free secondary education at public expense*.

The rise of the high-school movement. Massachusetts gave us not only the first public high school; to her goes the credit for the first law requiring the establishment of high schools throughout the state, and therefore the first state system of public secondary schools. The law was passed in 1827 and provides that every city, town, or district containing five hundred families "shall be provided with a master of good morals, competent to instruct, in addition to the elementary-school branches of learning aforesaid, the history of the United States, bookkeeping by single entry, geometry, surveying, and algebra . . . ; and in every city, or town, containing four thousand inhabitants, such master shall be competent in addition to all the foregoing branches, to instruct the Latin and Greek languages, history, rhetoric, and logic."⁴

¹ Inglis (12), p. 154.

² Arthur J. Jones (13), p. 423.

³ Brown (2), p. 303.

⁴ From Laws of Massachusetts, January Session, 1827, chap. cxliii, sects. 19, 21.

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"Previous to 1840," said Inglis, "not more than eighteen high schools had been founded in Massachusetts." Subsequently the increase in number was much more rapid. This is true of other states and sections of the country, although the growth was somewhat more accelerated in the Bay State. Other data presented by Inglis warrant his statement that "about one half of the schools which laid claim to the title of 'high school' in 1860 were to be found in Massachusetts, New York, and Ohio."¹ This is at the same time an acknowledgment that numbers were increasing elsewhere. Additional states for which high schools were reported are the other New England states, Pennsylvania, New Jersey, Illinois, Indiana, Michigan, and Wisconsin. From this time until the more recent period, data for which have already been presented, the spread of the movement was continuous and rapid, although its progress was not always unobstructed by the intrenched academies and other important influences. The onward sweep of the development of public secondary education was, however, inevitable.

The development in New York State. The high-school movement proper in New York, as well as in other states in its vicinity, was slower in getting under way than in Massachusetts. Some of the causes of the delay will be found in the brief treatment here to be accorded the development in New York. A word should first be said about the confusion in the names applied to secondary schools in this state, as well as elsewhere. What with "academies," "free academies," "seminaries," "institutes," and "high schools" in several senses, one who makes only brief excursions into the literature concerning the history of secondary schools in New York is likely to lose sight of the distinction between the academy as a quasi-public institution and the high school as a free tax-supported public secondary school. Gifford refers

¹ Inglis (12), pp. 154-155.

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to certain monitorial¹ institutions of secondary rank as "so-called high schools" which had some features in common with the public high-school movement.² The incorporation of each of thirteen of these was authorized by special act between 1825 and 1836, most of them as stock companies, but a few at least to be controlled by trustees of the districts and supported by taxation. Their establishment had been stimulated by Griscom and others who had become enamored of the monitorial organization.

Another step in the direction of the public high school was the extension of the elementary schools by the addition of higher subjects. This appears to have begun before 1826. Gifford quotes the state superintendent as saying in 1840 that "there is no reason why the highest branches of an English education taught in our academies may not be pursued in our common schools."³ This is a clear example of the natural upward extension of the public-school system. An even greater factor was the development of union districts and union schools which brought together more teachers and pupils in a single unit in the lower schools, and therefore included a larger number of those who might desire work on a higher level. This factor operated to increase facilities for secondary education in much the same way as does present-day school consolidation. Certain special laws passed near the middle of the century authorizing tax-supported union schools and academies in particular localities further paved the way for the Union Free School Act of 1853.

This union school act made *permissive* (not compulsory, as had the Massachusetts law a quarter of a century earlier) the organization of high schools, known as "academical departments," and placed them under the supervision of the

¹ The term refers to a school organization which as a chief feature employs older or more competent pupils as teachers of others.

² Gifford (8), p. 22.

³ Ibid. p. 34.

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University of the State of New York, which had been in control of the academies since before the opening of the nineteenth century. The subsequent ascendancy of the high school is apparent in the number of both classes of schools reporting to the Regents at year-points half a decade apart from 1840 to 1910. The number of academies was 141 in 1840; it increased to 170 by 1860, dwindled to 70 by 1885, and rose to 164 by 1910. After the passage of the Union Free School Act the number of high schools mounted with rapidity, passing the number of academies in 1875 and totaling 700 in 1910.¹ During the period a number of academies, by surrendering their private control and availing themselves of local taxation for support, joined the ranks of public high schools.

The factors of retardation which had to be overcome before New York's high-school system could evolve to its present stage of development have been summarized by Gifford:²

While in Massachusetts and other states to the east and west of New York the concept of the free high school was generally accepted by the middle of the nineteenth century, in New York State the victory could not be said to be fully won until near the end of the century. Various factors entered in to retard the development of high schools as follows: (1) the permissive nature of the union school laws and their early lack of clarity and lack of encouragement to weaker communities; (2) the decentralized condition of the lower schools until Superintendent Draper, a strong centralizationist, came into office in 1886 and was able to effect permanent reforms in and extensions of policies of state support and control and also in regard to the training of teachers; (3) the relatively strong hold that the academy maintained upon local educational leaders, upon the Regents and therefore upon state higher educational policy; and (4) the long contest between the Regents and Superintendent for control of the secondary schools, which involved two issues of large import, first, as to whether the academy was or was not a private institution and what its status was as regards state aid, and second, whether

¹ Gifford (8), p. 95.

² Ibid. pp. 112-113.

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the principle of voluntarism could be relied upon to finance higher education.

The aims of the high school. The aim of the first high school — the English Classical [High] School of Boston — has been set forth in quotation by Grizzell : ¹

That those early habits of industry and application may be acquired, which are so essential in leading to a future life of virtue and usefulness . . . calculated to bring the powers of the mind into operation, . . . to qualify a youth to fill usefully and respectably many of those stations, both public and private, in which he may be placed . . . an education that shall fit him for active life, and shall serve as a foundation for eminence in his profession, either mercantile or mechanical. . . .

The early high school, however, soon took on the additional function of preparation for college, the assumption of this function being connected by Grizzell with the disappearance of the Latin grammar schools.² After reviewing the early high-school movement Stout comes to a similar conclusion of dualism in aim : ³ "The aims of these high schools (Boston excepted) were to fit for higher institutions and also to prepare for the active duties of life. The two aims are revealed both in the stated purposes of the schools and in their curricula."

The high school has been, like the later academy, usually coeducational. Even where this has not been true, the secondary-school training of girls was not ignored, both boys' and girls' high schools being established.

Curricula. The courses offered naturally reflected the broadened purposes of the institution. Those of the Boston English Classical [High] School in 1823-1824, as reported by Inglis, were as follows : ⁴

3d or Lowest Class. No. 1. Intellectual and Written Arithmetic, by Colburn and Lacroix. 2. Ancient and Modern Geography, by

¹ Grizzell (10), p. 277.

² Stout (27), p. 14.

³ Ibid. p. 361.

⁴ Inglis (12), p. 17.

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Worcester. 3. General History, by Tytler; History of the United States, by Goodrich. 4. Elements of Arts and Sciences, by Blair. 5. Reading, Grammar, and Declamation. 6. Book-keeping, by Single and Double Entry. 7. Sacred Geography.

2d Class. Nos. 1, 2, 3, 4, 5, 6, 7, continued, and No. 8. Algebra, by dictation, and Colburn. 9. Rhetoric and Composition, Blair's Lectures Abridged. 10. Geometry, by Legendre. 11. Natural Philosophy. 12. Natural Theology, by Paley.

1st Class. Nos. 5, 8, 9, 10, 11, 12, continued, and 13. Chronology. 14. Moral Philosophy, by Paley. 15. Forensics. 16. Criticisms on English Authors. 17. Practical Mathematics, comprehending Navigation, Surveying, Mensuration, Astronomical Calculations, etc., together with the construction and use of mathematical instruments. 20. A course of experimental lectures on the various branches of Natural Philosophy. 21. Evidences of Christianity, by Paley.

In comparison with the almost exclusively classical entrance requirements of the period, this is clearly a non-college-preparatory offering. Examination of the published offerings of high schools subsequently established shows that they were generally directed at achieving *both* purposes: the college-preparatory and the non-college-preparatory. For example, the Classical and English High School of Worcester in 1845 had two "departments" corresponding to the two adjectives in its name.¹ In the classical department, in a curriculum four years in length, the work included, besides arithmetic and English grammar, only Latin, Greek, ancient geography, algebra, and geometry. In the English department, in a curriculum three years in length, in place of the classical languages were history, bookkeeping, French, botany, trigonometry, physiology, natural philosophy, chemistry, astronomy, moral philosophy, mental philosophy, rhetoric, the constitutions of the United States and of Massachusetts, and political economy.

What the courses offered in the high school were at about the time of the Civil War may be seen in the following tabula-

¹ Grizzell (10), pp. 303-304.

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tion by Stout of the frequency of appearance of subjects of study in twenty high schools (1860–1865).¹ The list is somewhat lengthened by the lack of uniformity in terminology.

Foreign Language

Latin, 16
Greek, 7
German, 7
French, 4

Mathematics

Arithmetic, 17
Algebra, 18
Geometry, 12
Analytics, 2
Surveying, 8
Engineering, 3

English

Grammar, 12
English analysis, 11
Word analysis, 4
Reading, 6
Composition, 11
Rhetoric, 18
English literature, 6
Literature, 1
Classics, 1
Elements of criticism, 4
Elocution, 1
English, 1

Science

Physiology, 17
Physical geography, 17
Natural philosophy, 20
Physics, 1
Chemistry, 17
Geology, 14

Science (continued)

Astronomy, 14
Botany, 14
Natural history, 5
Zoölogy, 4
Geography, 2

Social Studies

Ancient history, 8
Medieval history, 3
Modern history, 6
United States history, 3
English history, 3
General history, 3
Universal history, 2
Science of government, 3
United States Constitution, 8
Political economy, 4
History, 2
History of civilization, 1

Commercial Subjects

Bookkeeping, 3
Business forms, 1

Miscellaneous Subjects

Mental philosophy, 12
Moral philosophy, 11
Logic, 5
Psychology, 2
Evidences of Christianity, 2
Ancient geography, 2
Butler's *Analogy*, 1
Domestic science, 2
Natural theology, 2

Collation of the subjects which show largest numerical frequencies in this list with those already reported above for academies in New York discloses a large degree of similarity

¹ Stout (27), p. 62.

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— a fact which encourages the belief, often repeated, that the high school used the academy as its curricular model, the chief differences between the two institutions in this period being the methods of support and control. The high school, like the academy, also encroached to some extent on the college curriculum.

The offering has undergone far-reaching changes since the period of the Civil War. Certain subjects, such as surveying, mental philosophy, and moral philosophy, have practically disappeared. But the additions have much more than compensated for the subtractions. Curricular expansion may be considered almost if not fully as significant as the numerical and proportionate increase in schools and enrollment described in the first section of the chapter. Up to the opening of the twentieth century most of the additions were of an academic sort. The only frequent expansion along nonacademic lines was in commercial subjects, although training in the practical, vocational, and fine arts was sometimes made available. Since 1900 there has been a notable increase in these, as well as further modifications in the academic fields.

Length of the course in years. There was some variation, especially in the earlier high-school period, in the number of years over which the courses in these institutions extended. We have already noted that there was a three-year curriculum in the Boston English High School and that four and three years, respectively, were required to complete the classical and English departments of the high school in Worcester. A tabulation by Inglis indicates that a few of the high schools established in Massachusetts before the Civil War had curricula extending over five years, but most of them offered either three or four years.¹ The data reported by Stout for the North Central states show that a small proportion of high schools during the sixties and seventies offered three-year

¹ Inglis (12), pp. 97-98.

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curricula, but the majority had classes extending over four school years. In later years, except in small districts maintaining units admittedly of less than standard length, the number of years in high school was usually four throughout the country.

The Kalamazoo case. As we look back over the century or more embracing the history of the high school, the progress appears to have been so rapid that it is easy to lose sight of many important battles that had to be fought along the line of advance. [One of the severest of these was over the right to levy taxes in support of free public secondary education, a right without which the American high school could never have been brought to its present stage of development. There was much opposition to such taxation. The question could not be kept out of the courts, especially in states where, as in Michigan, neither the fundamental law nor the statutory law gave express permission to levy local taxes or use state primary funds to support the high schools. By the time the question got into the courts of Michigan in the early seventies, many communities had already established public high schools, most of them in accordance with a permissive law enacted in 1859.¹ A case was brought by certain citizens of Kalamazoo against the directors of the local school district "to restrain the collection of such portion of the school taxes assessed against complainants for the year 1872 as have been voted for the support of the high school in that village and for the payment of the salary of the superintendent." The case was decided against the complainants in both the district court and the supreme court of the state. The judgment of the court on the legality of the high school appears in the following summary quotation from the complete decision:²

We content ourselves with the statement that neither in our state policy, in our constitution, or in our laws, do we find the primary school districts restricted in the branches of knowledge

¹ Calvin O. Davis (6), pp. 190-192.

² 30 Michigan 60.

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which their officers may cause to be taught, or the grade of instruction that may be given, if their voters consent in regular form to bear the expense and raise the taxes for the purpose.

This decision not only settled the question for Michigan but established a precedent for cases in other states. It greatly strengthened, therefore, the security of the position of free public secondary education.

The emergence of state systems of high schools. It was to be expected, after the passage of state legislation providing facilities for secondary education (especially of the mandatory sort, but also of a permissive sort accompanied by aid), that what may be looked on as state systems of high schools should emerge. Enforcement of compulsory provisions and distributions of aid led to state direction and inspection, and these to standards. Lines along which standards have been formulated are shown in Appendix A. Standards in turn are applied through more or less elaborate organizations for state inspection and supervision. This tends to break down community individualism and to set up in its place a consciousness that local schools are part of a larger whole. We may judge from what has already been said that centralized control in the different states varied widely in time of beginning. There is also wide variation in the degree of control at present exercised. A large problem is how best to exercise stimulative control without suppressing local initiative. One direction in which the concept of a state system of secondary schools has seen commendable extension, one which may well be encouraged to continue, is that of the *distribution* of facilities by means of consolidation, transportation, payment of tuition (sometimes even allowances toward board and room), and the provision of dormitories.

Factors in the high-school movement. Even in this brief epitome of origin and development it may be seen that "the high school may be characterized as the legal successor to the Latin grammar school and the natural offspring of the

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academy.”¹ There is support for the contention that it is indigenous to American soil. Although there are faint traces of foreign influence, such as the occasional borrowing of the monitorial system or of a name with practically nothing of its Old World application, yet the difference as to European influence was even greater between the high school and the academy than it had been between the academy and the Latin grammar school. The potent factors which developed the high school as a type have already been set down as the influences toward popularization of secondary education. These are instinct with the spirit of our individual and institutional life and are vital forces in our industrial and economic development. A few of the more immediate influences may be added. (1) There was intimate association of this new institution with the lower schools, in contrast with the Latin grammar school and the academy, which were disjoined units. The system of common schools preceded the high school, so that the latter seemed like a natural upward extension of public-school facilities. (2) In one sense a special phase of this association was the development of high-school facilities in union-school districts. (3) Less potent, but to some extent influential, was the monitorial system, with its argument of low-cost instruction. (4) State control must often have stimulated further legislation and local development.

D. The Extended Secondary School

The first extensions. The fourth type of American secondary school is that which finds itself extending vertically; that is, downward to include what were formerly looked on as upper grades of the elementary school, or upward to include what have been regarded as the first two years of higher education, or in both these directions at once. The former phase is referred to as the junior-high-school movement, and

¹ Grizzell (10), p. 359.

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the latter as the junior-college movement. All the three earlier types were initiated in Eastern states; the extended secondary school is the first type to have its origin in the West, where also the state university has attained remarkable development. Both junior high school (or intermediate school) and junior college as actually operating emerged there, although the ideas that gave them birth may, as we shall see, have had their inception in Eastern states.

There seem to have been occasional partial prototypes of the junior high school before the opening of the current century; but it was left for Berkeley and Los Angeles in California, in 1909 and 1910 respectively, to provide for the first units having much in common with the junior-high-school idea of today. These were shortly followed by Grand Rapids and other cities in the Middle West. It is not generally known that the first junior colleges antedate the first junior high schools. Of the public junior colleges still in existence the first was that established in 1902 in the Township High School at Joliet, Illinois. Another was organized about the same time in connection with the high school at Goshen, Indiana, but it was subsequently discontinued. A beginning was next made at Fresno, California, in 1910, the legislature of that state having enacted a permissive statute in 1907. Chicago instituted junior-college work at Crane Technical High School in 1911. There were early private junior colleges also, the first large development taking place in Missouri. Hardin College in this state claims to be the first, reporting its establishment as a two-year institution in 1901, a year before the establishing of the first public unit. Most of the private units, however, were not established as extensions of secondary education, but rather as abbreviations of former four-year colleges.

The spread of junior-high-school reorganization. The spread of extension both downward and upward has been rapid, but it has been more rapid downward than in the

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opposite direction, doubtless because this involves no addition in years and also just because it *is* lower in the system. Briggs has reported the frequency of establishment during the first sweep of the movement as follows:¹

YEAR	NUMBER	YEAR	NUMBER
Before 1900	2	1912	21
1905	1	1913	27
1907	1	1914	44
1908	3	1915	76
1909	3	1916	68
1910	11	1917	6
1911	9		

The small number in the last year is not owing to a slump in development, but rather to incomplete reporting of the junior high schools that had been organized. The dates of first establishment appear to be in disagreement with those just cited, but this is owing to confusion in the minds of those reporting as to what constitutes a junior high school. The earliest ones reported were what have been designated above as prototypes. They were significant for the movement, but were not junior high schools as we now think of them. All evidence points to a more and more rapid increase in the number of junior-high-school reorganizations occurring in all sections of the country. The Bureau of Education received statistical reports for 1919-1920 from 434 three-year units and from 449 two-year units,² and this is almost certainly not a full count of all claiming at that time to be junior high schools or intermediate schools. Pratt³ and Glass⁴ have both reported on the status of junior high schools in our larger cities. Their extent in 1924 is shown in the following quotation from Glass's report, which is the more recent:

Thirty-five cities [of 68 with populations of 100,000 or more in 1920 of which inquiry was made] report junior high schools in

¹ Thomas H. Briggs (1), p. 32.

² *United States Bureau of Education Bulletin No. 37* (1922), pp. 22-23.

³ Orville C. Pratt (22).

⁴ James M. Glass (9).

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operation. Nine additional cities report junior high schools under construction. Four additional cities report junior high schools authorized. Thus, 48, or 75 per cent, of the cities replying report junior high schools in operation, under construction, or authorized. Two additional cities report the adoption of the junior-high-school plan of organization, and one city reports that adoption is favorably considered, making 51 (80 per cent) that have taken positive or favorable action. . . .

Although no data are at hand for smaller cities, growth has gone forward rapidly in them also. From twenty-five to fifty years should see near-universality with respect to this phase of reorganization.

The growth of junior colleges. Even though it has been outstripped in growth by the junior high school, the junior college has also grown with rapidity. Between 1902 (the first appearance of a public junior college) and 1922 the number of public units had increased to 46, located in thirteen states in practically all sections of the country.¹ By 1927 the number had risen to a total of no less than 105 such units. Including all types under public and private foundations, in state institutions, normal schools, teachers' colleges, etc., the total number in 1927 was doubtless in excess of 325, distributed in all but a small proportion of our states. Not only on account of its rapid development, but even more because of the forces back of the movement, the junior college in one form or another seems destined to become a permanent feature of the public-school system.

Influences impelling extension downward and upward.
1. *Toward junior-high-school reorganization.* Although junior high schools themselves did not come into existence until after the opening of the present century, the discussion which stimulated reorganization naturally began much earlier. Among the arguments used was what seemed to the critics the waste of time in our upper elementary grades. This con-

¹ Leonard V. Koos (17), p. 4.

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viction of a need of economy was unquestionably suggested by a comparison of the subjects pursued by pupils in our system and by boys in corresponding grades of European — more especially German and French — secondary schools. In the foreign systems advanced subjects like the foreign languages and supra-arithmetical mathematics are begun much earlier than with us. The famous report of the Committee of Ten contained the following remarkable statement : ¹

In the opinion of the committee, several subjects now reserved for high schools — such as algebra, geometry, natural science, and foreign languages — should be begun earlier than now, and therefore within the schools classified as elementary ; or, as an alternative, the secondary-school period should be made to begin two years earlier than at present, leaving six years instead of eight for the elementary school period.

Although the argument of economy of time took a more democratic turn as the years passed, it was one of the first influences in junior-high-school reorganization. A second factor must have been the amazing maladaptation of our schools, inferable from surveys which disclosed large proportionate elimination and retardation. Such findings were out of harmony in a nation which claimed to give equality of opportunity, educationally and otherwise. These disconcerting facts prompted a study of eliminated and retarded pupils, resulting in the discovery of differences in capacity, interests, and needs. This in turn became a third strong argument for reorganization. Another potent influence was the dawning consciousness of pronounced changes in the nature of the children in the later grades of the elementary school, — changes which make the features of that school unsuited to them.

2. *Toward the junior college.* Strange to say, the earliest movement toward the junior college, as well as toward the downward extension of secondary education, emanated from

¹ (23), p. 45.

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a comparison of the American system with European systems of education, a comparison thought to be unfavorable to our organization. The criticism is treated at greater length near the close of Chapter VII. Whatever influence this argument had in the past is now far outweighed by that of several others. It should, nevertheless, take on new significance in



FIG. 4. The Boston Latin Grammar School, founded in 1635. (The expansion of secondary education in the United States is suggested by comparison of this simple structure in the yard of King's Chapel with the building shown on the opposite page)

encouraging upward extension when those who determine our school policies become aware of the facts in the trend of higher education during the last century. This trend has made a place for junior-college reorganization by introducing a plane of cleavage between the second and third college years, a plane that increasingly separates (for those who go on) the period of general education from the period



FIG. 5. The Hibbing, Minnesota, High School. (This is a structure housing all secondary-school grades, including junior-high-school, senior-high-school, and junior-college years.) (Photograph by P. Schawang, St. Paul)

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of professional and other advanced specialization. Other factors now more significant are the popularization of higher education on the collegiate level through bringing it nearer the home of the student, lowering its cost, and permitting the continuance of home influences where the student would, without a local junior college, be obliged to leave home. These influences are in a sense all covered by a comprehensive factor, the natural upward extension of the public secondary school, somewhat as the high school was the natural upward extension of the free common school.

3. *Toward a secondary education reaching below and above the four-year school.* Another cause of the rapid movement toward the extended secondary school may be found in the almost casually determined length of its predecessor, the four-year high school. It has been made clear that the high school was superimposed on an elementary school that had manifested a tendency to reach upward. This tendency was so marked that in many places in New England and sometimes elsewhere it extended through nine years of work. The college also, because of a frequent lack of preparatory schools, had in the early period reached down even to the inclusion of what are now known as common-school subjects. When the high school, shortly after its earliest establishment, took on the second of its pair of aims, namely, college preparation, it was really called upon to bridge only a short gap of training. It is certain that the gap would have been greater if, instead of accident, foresight had been able to determine the length of each unit in the system. In consequence it was only natural that the secondary school should begin to outgrow the space originally allotted to it. Moreover, the high-school offering grew rapidly, by inheritance of subject after subject from the college above (see Chapter VII), and also by additions prompted by the needs of life outside. There was not room for all this content within the brief span of four years; and the logical period

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of secondary education now being achieved was hastened by the overflow of subjects into the institutions above and below, even without external regrouping of grades.¹

In many ways the factors encouraging extension are at one with the impulse for progress toward a more broadly democratic educational service; in the last analysis they have much in common with what lies back of the shift from type to type in the first three steps of the evolution of American secondary education.

The great American secondary school. Secondary education in America began about three centuries ago with the Latin grammar school, which served a small portion of only one of the sexes, with a course restricted to the classics and with an eye single to college preparation. It was followed by the academy, an institution committed to a more generous service, inclusive of both sexes and of both college-going and non-college-going groups. Being, however, in vital respects a private school, it was less responsive to the general need and less well adapted to our democratic institutions than its successor, the public high school. The high school has continued the functional development begun in the academy. Although it still has much to achieve before "all the children of all the people" are in attendance, the proportion of the total population drawn into it is not equaled in the secondary schools of any other large nation. Popularization was accompanied by a horizontal expansion of the offering which has brought in subject after subject and curriculum after curriculum. The vocational types of content demanded by a democratized school have at last begun to appear in increasing variety. But secondary education has in recent years been expanding not merely in horizontal directions; it is extending vertically as well. It has reached downward to include the last years of the old eight-year elementary school, and is reaching upward to years formerly regarded as the

¹ Compare Judd (15), pp. 71-82.

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peculiar province of the college. Mighty forces seem now to be carrying us rapidly from a three-year or four-year unit to an eight-year period of secondary education. In a number of ways our secondary school is being both broadened and lengthened. What an inspiring contrast is afforded by the simple college-preparatory isthmus of the earlier period and the spacious educational mainland represented in the great American secondary school of tomorrow!

QUESTIONS AND PROBLEMS

1. Work out for some one state the growth in numbers of schools, in pupils, and in the proportion of the population of high-school age enrolled at census periods, as was reported in this chapter for the country as a whole.

2. Trace the relationships of the colonial grammar school to its European beginnings.

3. Trace the origins of the academy movement in America to any analogous movement in Europe.

4. What are the implications for the history of the high school from a comparison of the floor plans of the Providence High School (1848) and of the Dubuque Senior High School, as shown in Chapter XIX?

5. Present in as simple chart form as possible the changes through the four types that have taken place in American secondary education with respect to purposes of the schools, curriculum, sexes admitted, number of years in courses, and control and support.

6. Trace the development of secondary education in some Western, Mid-Western, or other state the educational history of which does not extend to a period much before the middle of the last century.

7. Trace the development of the junior high school in greater detail than has been done above.

8. Trace the development of the extended secondary school in some one state in which the junior high school and the junior college have both had relatively vigorous beginnings.

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9. Discuss the merits of the lines along which standardization and control of secondary education are shown in Appendixes A and B to have manifested themselves.

10. Study the history of aid for secondary education in some state or group of states.

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- Bibliographies of the history of American secondary education will be found on pages 481-518 in Reference 2 and on pages 443-451 in Reference 26 above.

II

SECONDARY-SCHOOL PUPILS — PHYSICAL AND MENTAL GROWTH

I. ADOLESCENCE AS A PERIOD OF GROWTH

The nature of the secondary-school population the next concern. Having presented in the foregoing chapter the major outlines of development of our secondary schools, we next turn our attention to those for whose education these schools exist — the pupils. Whatever the treatment to be accorded them, there can be no gainsaying the importance of this phase of the whole problem of secondary education. The treatment of the secondary-school pupils will extend through two chapters, the first to deal with their physical and mental growth, and the second with their characteristics as determined by variation and selection.

This chapter a consideration of the adolescent. Pupils of secondary-school age are often referred to as "adolescents" or as being in the "period of adolescence." In defining these terms it is customary to point out their Latin derivation from *adolescere*, "to grow," or "to grow up to maturity." No definite limits can be set for the period, but it is not uncommon to refer to it as the "teens." These words have sometimes been used in the sense that they refer to certain specific characteristics of the period; for instance, those attributable to sex. They will be employed here in a broader sense as referring to all youth of secondary-school age on its way from childhood to adulthood: youth in all its aspects — physical, mental, social, and other phases of one's make-up.

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Because these terms emphasize growth during the period represented, it is appropriate to direct attention to some of the means of describing the stage of development reached by an individual. Among these is that of saying that a given individual has attained some numerical "age." To mention a number, we speak of the chronological, anatomical, physiological, mental, educational, social, or even the religious age of a child. It is customary, moreover, to relate all the other ages to the chronological, which is used as the basis for establishing norms and for indicating the extent of departure of the individual from these norms; for example, as to mental age or educational age. The procedure in the present treatment will in the main follow this practice, but it must deviate from it to some extent for the reason that all aspects in which adolescents should be described have not yet been sufficiently subjected to accurate measurement, as we may well hope will be done at no remote time.

II. PHYSICAL GROWTH OF THE ADOLESCENT¹

Growth in stature. The first respect in which the adolescent is to be described physically is his height. This may be done by reference to the results of measuring large numbers of pupils at each age, as they are reported by Burk, from Boas. The average measurements cited here begin with boys and girls at 5.5 years of age and extend to 18.5 years for boys and to 17.5 years for girls. These data show that boys average 41.7 inches in height at the lowest age included and attain an average stature of 67.4 inches at 18.5 years. Between 5.5 years and 17.5 years the average girl grows from 41.3 inches to 62.7 inches.

¹ Although they are not without pertinence, data will not be presented concerning the pre-school child. The best that can be done here in describing growth preceding adolescent years is to begin with the child at about his first school year. If the reader desires evidence on growth in infancy and pre-school years this is obtainable in such a report as that of Bird T. Baldwin (3).

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TABLE IV. AVERAGE HEIGHT OF BOYS AND GIRLS IN CERTAIN AMERICAN CITY SCHOOL SYSTEMS ¹

APPROXIMATE AVERAGE AGE	AVERAGE IN INCHES	
	Boys	Girls
5.5	41.7	41.3
6.5	43.9	43.3
7.5	46.0	45.7
8.5	48.8	47.7
9.5	50.0	49.7
10.5	51.9	51.7
11.5	53.6	53.8
12.5	55.4	56.1
13.5	57.5	58.5
14.5	60.0	60.4
15.5	62.9	61.6
16.5	64.9	62.2
17.5	66.5	62.7
18.5	67.4	—

Examination and comparison of the two lines of growth (Fig. 6) bring out some significant facts. The first general impression is that of straight lines, indicating approximation to roughly equivalent increments of growth for all years represented. Careful scrutiny discloses the fact that the increments drop off rapidly in the later years of the period, the boys beginning more noticeably at the age of 15.5, the girls a year or two earlier. The lines of average statures for the two sexes are near each other from 5.5 to 15.5 years. However, they cross each other twice during the full period represented. The facts are that the average stature of boys exceeds in small amount that of girls until after 10.5 years (only very slightly at 9.5 and 10.5). From 10.5 years on there is an average acceleration for girls which keeps their average above that for boys until sometime between 14.5 and 15.5. Between 13.5 and 14.5 the average for boys experiences an acceleration that overcomes the favorable differences

¹ Frederic Burk (11), p. 262.

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for girls at the point already mentioned. Although the accelerations on the averages near the points of the crossing of lines are not large, they are enough to interchange the relative positions of the lines for boys and girls twice in a period of about five years.

Individualizing the growth curve for height. Averages alone, however, often fail to afford an adequate description of the

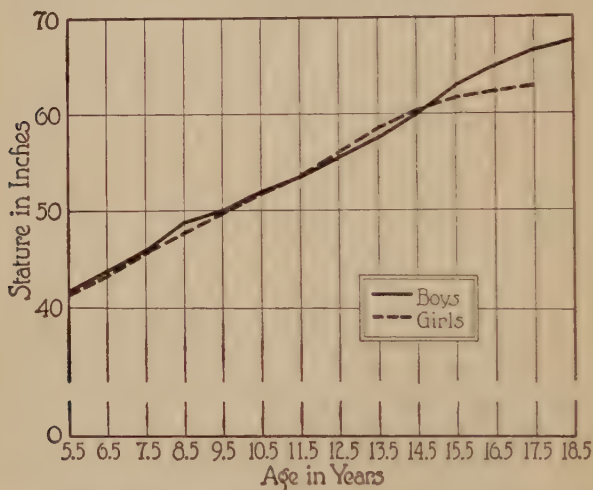


FIG. 6. Average height of boys and girls in certain city school systems
(After Burk)

real situation. This applies to the facts of growth in stature of boys and girls. Among those who have emphasized the necessity of *individualizing* the method of investigation was Baldwin, who has said, "Let us begin to do what should have been done long ago, i. e., plan consistently to make *intensive consecutive studies throughout a series of years on the same individuals.*"¹ It may be inferred from what has already been said concerning the averages so far reported that they were

¹ Baldwin (4), p. 193.

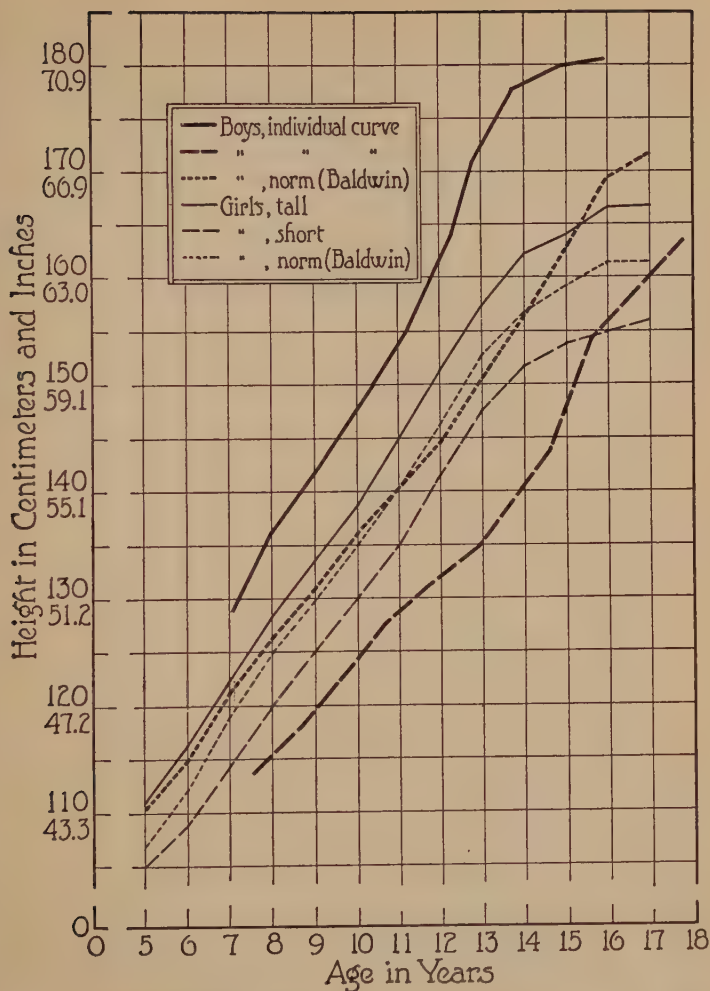


FIG. 7. Growth curves in height of a tall boy, a short boy, the average boy, and tall, average, and short girls. (From Bird T. Baldwin and Lorle I. Stecher (6), p. 13, Chart III)

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computed from measurements of large numbers of pupils at each age represented, rather than from studying the same individuals over a period of years. The effect of the individualized method on our understanding of growth in stature may be shown by reference to the growth curves prepared by Baldwin, who had begun to apply it some years before publication of the article from which quotation has been made and who has made available certain findings significant for an appreciation of the extent and nature of physical growth in children.

TABLE V. AVERAGE WEIGHT OF BOYS AND GIRLS IN CERTAIN AMERICAN CITY SCHOOL SYSTEMS ¹

AGE	AVERAGE WEIGHT IN POUNDS	
	Boys	Girls
6.5	45.2	43.4
7.5	49.5	47.7
8.5	54.5	52.5
9.5	59.6	57.4
10.5	65.4	62.9
11.5	70.7	69.5
12.5	76.9	78.7
13.5	84.8	88.7
14.5	95.2	98.3
15.5	107.4	106.7
16.5	121.0	112.3
17.5	—	115.4
18.5	—	114.9

The chief impressions gained from examination of the illustrative individual curves resulting from measurements (see Fig. 7) are (1) the accentuation of the acceleration of growth in height when compared with that shown in curves based on averages, (2) the wide variation in stature between tall and short individuals, and (3) the earlier age of onset of the accelerations for the tall as compared with the short.

¹ Burk (11), p. 263.

PHYSICAL AND MENTAL GROWTH OF PUPILS

Growth in weight. The curves for averages in weight of large numbers of boys and girls at the ages under consideration are similar to those for height. Both boys and girls for a number of years after the age of 6.5 show (Table V and Fig. 8) rapid increments, the boys maintaining an excess over girls until about twelve years, from which point the girls, because of

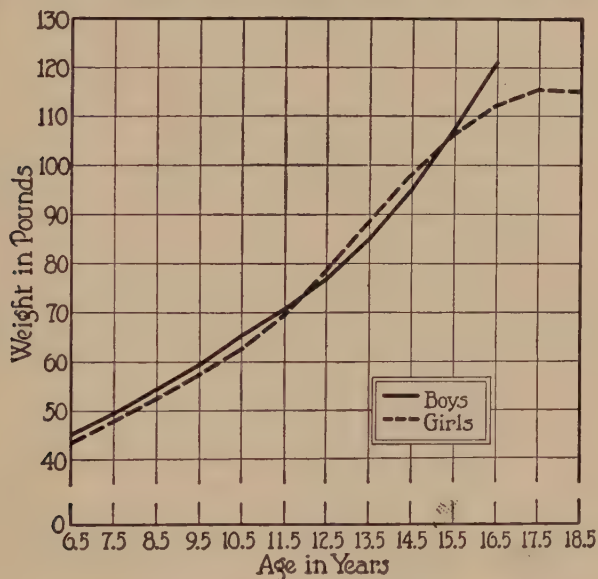


FIG. 8. Average weight of boys and girls in certain city school systems (After Burk)

acceleration, show an excess until some time between 14.5 and 15.5, when acceleration in boys makes their average overtake and exceed the average for girls. For girls the growth begins to slacken markedly at about 16, whereas for boys it goes on for some time. This longer period over which the weight of boys continues to increase accounts for the large average difference between adults of the two sexes.

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Individualization of the growth curves for weight. The influence of individualizing the curves for weight is well set forth in the following quotation from Baldwin:¹

... There are strikingly significant differences between the growth in weight and the growth in height. The trend of the weight curves is toward concavity rather than toward convexity. There is more individual variation in weight and more variation in the distribution of individuals within the group, although as a general rule heavy children remain relatively heavy during the period studied. . . .

Girls, as a rule, are relatively heavier for their height than boys. . . . The individual weight curves show that the pre-adolescent acceleration in weight precedes, as a rule, the acceleration in height, and that this stage in development is earlier for tall boys and tall girls.

Growth in breathing capacity. Another phase of physical development on which data are presented is the growth in breathing (vital) capacity. The curves of averages for boys

TABLE VI. VITAL CAPACITY (IN CUBIC CENTIMETERS) OF BOYS AND GIRLS AT EACH YEAR OF AGE²

AGE	BOYS	GIRLS	EXCESS OF BOYS OVER GIRLS
6	1023	950	73
7	1168	1061	107
8	1316	1165	151
9	1469	1286	183
10	1603	1409	194
11	1732	1526	206
12	1883	1664	219
13	2108	1827	281
14	2395	2014	381
15	2697	2168	529
16	3120	2266	854
17	3483	2319	1164
18	3655	2343	1312

¹ Baldwin (3), pp. 73-75.

² F. W. Smedley (29), pp. 13-14.

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and girls (Table VI and Fig. 9) do not cross as with those for height and weight. On the contrary, they draw farther apart with each succeeding year of age after six, even showing a slight increase in deviation from each other during the period of slight acceleration for girls, that is, from eleven to thirteen. The marked acceleration for boys begins after twelve, and the gap between the averages widens rapidly

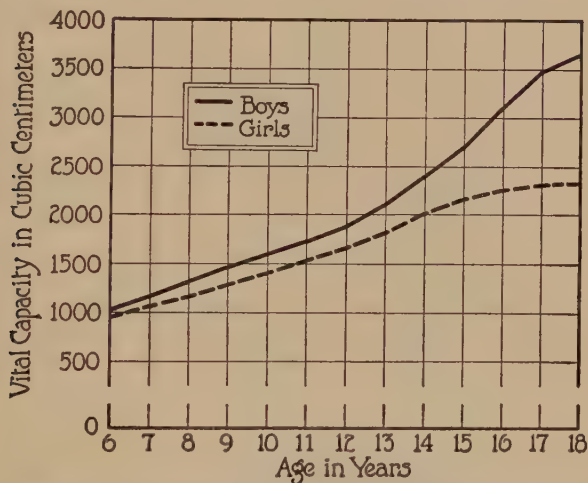


FIG. 9. Vital capacity of boys and girls at each year of age from six to sixteen. (Reported by Smedley)

from this age onward. By the age of seventeen the breathing capacity for boys exceeds that for girls by fully 50 per cent of the latter.

Of the individualized curves of breathing capacity prepared by Baldwin, he says in part :¹

These curves, like those of weight, tend toward concavity. There are more individual variations than for height and, in general, the larger children have greater breathing capacity than the smaller ones. . . .

¹ Baldwin (3), p. 79.

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The girls as a group show smaller breathing capacity than do the boys. The girls reach their periods of cessation of growth before the boys. The boys' curves show more concavity during the preadolescent age than do those of the girls, and the general shape of the curve differs. When the large number of possibilities is considered, the curves of breathing capacity show relatively little crossing.

Other measures of physical growth. If space permitted, the results of other physical measurements might be illustrated. For example, Baldwin reports the measurements of sitting height, chest girth, strength of right forearm, strength of the left forearm, and strength of the upper back. Growth in the circumference of the head ¹ and other measurements have also been reported. Although the results differ in detail, they resemble in approximation one or another of those already cited.

Among the more recently developed methods of investigation of anatomical growth is that of studying by means of X ray the development of the carpal bones. Use of this means has been made by Baldwin ² and by Freeman and Carter ³ and others. The method of computation from the photographs varies from investigator to investigator, but from reading the reports of the measurements one gains the impression that it will eventually be possible to establish criteria of anatomical age more useful in certain cases than more readily observable changes in physical characteristics. Among the conclusions drawn by Baldwin from his investigations are the following: ⁴

The size and number of the carpal bones increase with age during childhood.

Girls at a given chronological age have a larger exposed surface area of the carpal bones . . . than have boys.

¹ Guy M. Whipple, *Manual of Mental and Physical Tests*, Part I, pp. 88-89 (quoting from Arthur MacDonald).

² Baldwin (3), pp. 167-187.

³ Frank N. Freeman and Thomas M. Carter (17).

⁴ Baldwin (3), p. 180.

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There is a high coefficient of correlation between height and area of carpal bones (boys, + 0.879; girls, + 0.729) and also between weight and area of the carpal bones (boys, + 0.755; girls, + 0.766).

Boys have a higher correlation than girls for height and area of carpal bones and about the same as girls for weight and area of the carpal bones.

Freeman and Carter also have essayed measurement of anatomical development by depending on what they term an "ossification ratio," which is the ratio of "total ossification" to the "carpal quadrilateral." This in turn is the "area of a quadrilateral which was made by joining specified points at the extremities of the bones of the arm and of the hand."¹

Changes in the circulatory system. A fact of great significance concerning physical change during adolescence is found in the relative rates of growth of the heart and of the arteries. Landois is often cited in this connection. He has shown that the ratio of the size of the heart to the cross section of the arteries is from 25 to 20 at birth, from 140 to 50 at puberty, and from 290 to 61 at maturity. This means an augmented capacity of the heart, resulting in increased blood pressure and a slightly higher bodily temperature (computed at 0.5° F.).

Changes in primary and secondary sex characteristics. As was stated in an earlier paragraph of this chapter, the term "adolescence" is sometimes understood to refer chiefly to the sexual characteristics rather than to the broader sense in which it is being used here. These characteristics, the primary and the secondary, are more or less obvious and generally recognized, but it may be well at least to refer to them at this point. First to be mentioned, perhaps, are the reproductive organs themselves, which manifest a notable increase in size. This increase accompanies an internal development of capacity to secrete the spermatozoa and the ova, the male and

¹ Freeman and Carter (17), p. 259.

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the female reproducing cells respectively. These organs also secrete the hormones influential in producing the secondary sex characteristics. At this time also both boys and girls become pubescent; that is, experience the growth of hair in the pubic and axillary regions. Boys also show a growth of hair on the face and frequently on the trunk as well. The body becomes adult in contour, the girl having a marked development of the mammæ and hips, adipose tissue also being deposited in other areas. The voice likewise undergoes a marked change, especially in the boy.

The endocrine glands. Mention of the sex glands — the spermaries and the ovaries — calls attention to the recent emphasis on the profound influence of all the endocrine glands on the adolescent. The brief treatment that can be accorded them will be quoted from Bigelow:¹

Among the glands which are concerned with the formation of internal secretions (or incretions) seven are now fairly well known to physiologists, namely, the thyroid and the parathyroid glands in the neck, the suprarenals near the kidneys, the pineal and pituitary glands in the brain, certain regions in the pancreas, and the reproductive glands (ovaries and spermaries).

The secretions of these contain certain substances (hormones) that are distributed through the body by the blood and lymph and produce marked effects in the growth and activities of various organs. Some of these substances are popularly known. The therapeutic use of thyroid extract, of pituitary extract, and of adrenaline or suprarenal extract has been familiar for many years. . . .

It is now clear to physiologists that some of the hormones from the endocrine glands exert a profound influence in the changes of adolescence. First of all should be mentioned the well-known relation of the thyroid extract to the fundamental nutritional processes (metabolism) of the body, and the enormous importance of this gland in its direct influence on growth and other changes of the adolescent period.

¹ Maurice A. Bigelow (9), pp. 30-31.

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Closely associated with the thyroid's influence on growth is that of the pituitary gland of the brain. Its excessive activity in early life is the cause of great height (gigantism). . . . If there is under-secretion . . . the growth of the skeleton is retarded and the individual is a dwarf in stature. . . .

The suprarenal hormones also affect sexual development and adolescence directly. . . . Sometimes, fortunately rarely, over-activity of the suprarenals begins in early childhood, and premature sexual development is the result, girls of three or four menstruating regularly, and boys of six or seven having the sexual characteristics of men.

Finally, among the glands that profoundly influence adolescence there is the popularly known relation between the reproductive glands and sexual characteristics. It is well known that when deprived of these glands in early life, the individual develops normally so far as growth and all non-sexual functions are concerned, but the usual manifestations of sexual instincts and secondary sexual characteristics, such as voice, pubescence, and bodily form, do not develop.

The foregoing is an outline of some of the best-known relations of endocrine secretions to adolescent development. No doubt the reactions are complicated by various interactions of the endocrine glands. As stated before, marked changes in certain glands may interfere with the course of adolescence, but our present knowledge leads us to think of the normal life of the adolescent period as the combined result of the coördinated and well-balanced activity of all the endocrine glands, and, in particular, the thyroid, the pituitary, the suprarenals, the ovaries, and the spermaries.

Mortality and morbidity. There appears to be no support to the claim sometimes made that puberty is a period of relatively high mortality; in fact, such evidence as is available for this country points to a relatively low rate of mortality. In the absence of unequivocal evidence on either side it is impossible to state with assurance that puberty is or is not a period of increased morbidity. Terman seems to lean toward a belief that it is:¹

¹ Lewis M. Terman (31), p. 26.

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Investigations on this point are somewhat contradictory, but indicate on the whole that, although the mortality rate is lowest when the adolescent acceleration is greatest, morbid conditions of both mind and body are at that time most frequent. This is particularly true of girls. It is necessary, however, to discriminate diseases and to determine the curve of liability of each. To lump together diseases and complaints of every kind and to enumerate them as so many "illnesses" or "defects" is of doubtful value, at best, and may be misleading.

Bigelow, who was quoted above on the influence of endocrine glands, appears to have little sympathy with the belief that we are concerned here with a "critical" period.¹

Physicians commonly speak of puberty as a "critical" period in the health of boys and, especially, of girls. Certainly there are numerous individuals whose health is temporarily or permanently injured before the age of fifteen; but it is no longer scientific to assume that the pubertal period is constitutionally critical. In other words, it is not natural to break down in adolescence. Nothing in the sexual maturing of well-cared-for animals gives evidence that the final physiological preparation for the reproductive function is naturally an exhausting process.

The accumulating evidence is pointing towards the conclusion that the "critical" aspect of human puberty in highly civilized countries is probably due very largely to unhygienic conditions, most of which are preventable or correctable in childhood and adolescence.

Bigelow then illustrates the unhygienic influences of school and social life, and closes as follows:²

The conclusion of the discussion . . . is that early adolescence is often "critical" simply because of the artificial and unhealthful living begun in childhood in bad habits of food, rest, sleep, overwork in school and play, and over-excitement. Every so-called "delicate" child deserves careful watching with reference to these possible dangers that bulk large in the teens.

¹ Bigelow (9), pp. 33-34.

² Ibid. p. 34.

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Period of the onset of puberty. Up to this point in the chapter adolescence has been shown to be a period of remarkable physical growth and change. This statement is applicable to practically all respects in which the physical development of boys and girls has been described in any detail: stature, weight, breathing capacity, circulation, and primary and secondary sex characteristics. It has also been noted that there is a marked acceleration of the development in these respects, the acceleration finding place at what is known as the period of the onset of puberty. When the results of measurements and observations are set forth for individuals rather than as averages for large numbers of boys and girls at each age, the evidence of acceleration is markedly accentuated. One leaves a canvass of such data with the general impression that although growth is rapid from birth to adulthood, the period of pubertal development is one of especially profound significance in the physical constitution of youth, and perhaps even to youth's mental make-up. The fact that all the tendencies to change, whether pertaining peculiarly to sex or less strictly sexual, arrive contemporaneously for any individual adds to this impression of their far-reaching significance. On this account it is important for those concerned with the education of youth to know *when* the changes take place, both with respect to the *ages* of boys and girls and the *school grades* in which they are enrolled.

Bigelow has asserted that there are "no accurate signs which sharply mark either the beginning or the end of adolescence."¹ The criterion most frequently used in locating the onset of puberty is pubescence, already mentioned above among the secondary sex characteristics. It is now admittedly inaccurate as an indication of sex maturity, but it will doubtless continue in use until a better basis is at hand. It will at least afford an approximation to the information desired.

¹ Ibid. p. 4.

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The results of observations cited are those of Crampton for boys¹ and those of Baldwin for girls² (see Tables VII and VIII and Fig. 10). Because the number of girls represented is much smaller than the number of boys, the progression of percentages from age to age in the data from Baldwin is more irregular. Because postpubescence (sex maturity) follows rapidly on the heels of pubescence, it is appropriate, in thinking of the educational problems involved, to consider those in both stages as combined in a single group; at least it is preferable to consider as a single group those who are mature and maturing rather than those who are immature and maturing. Among the conclusions that may be drawn from examination and comparison of the cumulative percentages by age, a few of the more significant can be stated. (1) There is a wide range of ages at which maturity arrives for both sexes: for boys, from somewhere in the vicinity of eleven years to seventeen years or even later; for girls, from ten to sixteen or seventeen. (2) On the other hand, the spread of ages during which pubescence arrives for *most* children is not nearly so wide. For the great bulk of boys it falls between twelve and fifteen, and for most girls between eleven and fourteen. (3) The last sentence emphasizes again the earlier age at which the changes take place in girls. In other words, among chief conclusions are variation within each sex and between sexes and rapid accumulation within a limited range of three years for each sex.

The school grades of the onset of puberty. The situation as to the grades in which pupils become pubescent and post-pubescent will be illustrated by utilizing the results of applying the percentages just presented to the age-grade distribution of children in a number of school systems of middle and smaller size in Minnesota, systems which enrolled a total of almost forty thousand children in Grades 1-12

¹ C. W. Crampton (14), p. 150.

² Baldwin (2), p. 17.

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TABLE VII. PERCENTAGES OF 3825 BOYS (1) PREPUBESCENT, (2) PUBESCENT, (3) POSTPUBESCENT, AND (4) PUBESCENT AND POSTPUBESCENT, BY HALF-YEARS FROM 12½ TO 17¾ YEARS OF AGE¹

AGE	PREPUBESCENT	PUBESCENT	POSTPUBESCENT	PUBESCENT AND POSTPUBESCENT
12.25	(81)	(16)	(2)	(18)
12.75	69	25	6	31
13.25	55	26	18	44
13.75	41	28	31	59
14.25	26	28	46	74
14.75	16	24	60	84
15.25	9	20	70	90
15.75	5	10	85	95
16.25	2	4	93	97
16.75	1	4	95	99
17.25	—	2	98	100
17.75	—	—	100	100

TABLE VIII. PERCENTAGES OF 1241 GIRLS (1) PREPUBESCENT, (2) PUBESCENT, (3) POSTPUBESCENT, AND (4) PUBESCENT AND POSTPUBESCENT, BY HALF-YEARS FROM 10 TO 17 YEARS OF AGE²

AGE	PREPUBESCENT	PUBESCENT	POSTPUBESCENT	PUBESCENT AND POSTPUBESCENT
10.0	100.00	0.00	0.00	0.00
10.5	93.75	6.25	0.00	6.25
11.0	100.00	0.00	0.00	0.00
11.5	78.84	19.23	1.92	21.15
12.0	62.06	37.93	0.00	37.93
12.5	58.20	23.88	17.91	41.79
13.0	39.53	34.88	25.58	60.46
13.5	15.15	37.87	46.96	84.83
14.0	15.38	38.46	46.15	84.61
14.5	4.83	17.74	77.42	95.16
15.0	0.00	14.54	85.45	99.99
15.5	1.55	7.81	90.62	98.43
16.0	2.04	6.12	91.83	97.95
16.5	0.00	3.17	96.83	100.00
17.0	0.00	0.00	100.00	100.00

¹ Crampton (14), p. 150.

² Baldwin, "A Measuring Scale for Physical Growth and Physiological Age," in Fifteenth Yearbook of the National Society for the Study of Education (1916), Part II, chap. i.

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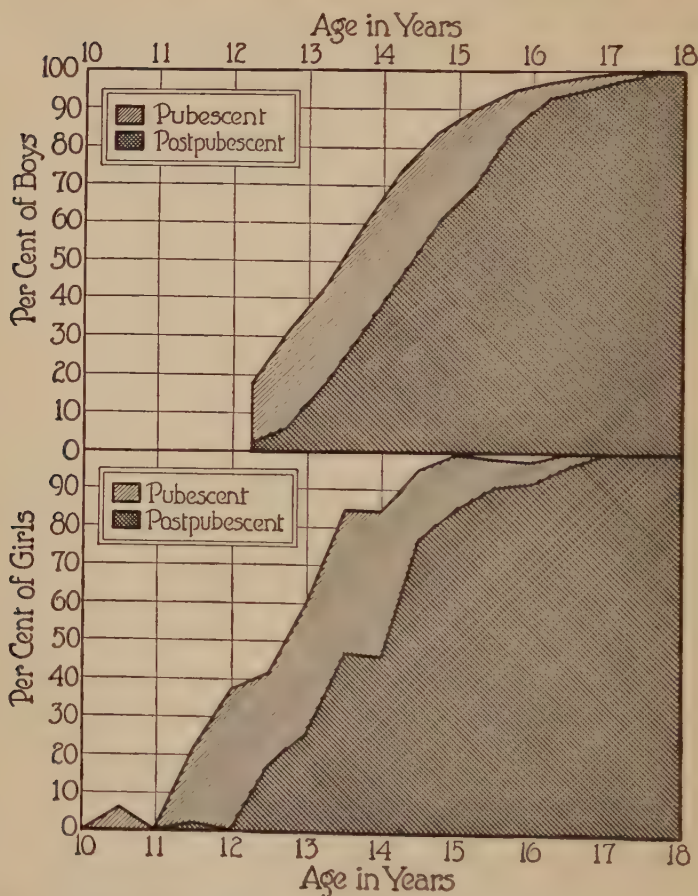


FIG. 10. Percentages of boys and girls pubescent and postpubescent, by chronological age. (After Tables VII and VIII)

during 1923-1924. On the assumption that the percentages of Crampton and Baldwin are applicable, the percentages of pupils who are pubescent or postpubescent in each grade from the fourth to the twelfth, inclusive, were as shown in

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TABLE IX. DISTRIBUTION OF PUPILS BY AGES AND GRADES IN CERTAIN SCHOOL SYSTEMS IN MINNESOTA (1923-1924)¹

AGES	GRADES								
	4	5	6	7	8	9	10	11	12
6½	1	—	—	—	—	—	—	—	—
7	6	1	—	—	—	—	—	—	—
7½	29	1	—	—	—	—	—	—	—
8	129	5	—	—	—	—	—	—	—
8½	336	30	1	—	—	—	—	—	—
9	867	128	14	—	—	—	—	—	—
9½	840	351	36	1	1	—	—	—	—
10	524	743	145	12	2	—	—	—	—
10½	368	747	317	43	9	—	—	—	—
11	228	536	669	169	21	3	—	—	—
11½	129	358	660	271	38	4	—	—	—
12	85	241	455	604	121	23	2	—	—
12½	59	146	370	571	232	63	3	—	—
13	29	120	235	481	545	252	25	1	1
13½	19	62	171	375	571	371	56	4	—
14	12	31	93	294	499	653	190	21	1
14½	9	35	72	212	378	699	324	56	4
15	5	18	35	162	277	545	599	135	25
15½	4	8	34	87	205	452	545	242	41
16	—	4	2	34	90	294	511	507	141
16½	—	1	1	14	38	193	359	429	219
17	—	—	3	5	17	83	209	345	412
17½	—	—	1	1	10	56	151	294	394
18	—	2	1	3	11	33	66	197	371
18½	—	—	—	—	—	10	42	125	229
19	—	—	—	—	—	9	18	47	146
19½	—	—	—	—	—	1	10	38	82
20	—	—	—	—	—	—	4	11	34
20½	—	—	—	—	—	—	2	8	15
21	—	—	—	—	—	—	8	6	16
Total	3679	3468	3315	3339	3065	3744	3124	2466	2131

Table X and Fig. 11. It should be emphasized that these percentages can be no more than approximate. Perhaps they are within 5 or 10 per cent of what actual observation in this respect would find. It may be, since so many of these chil-

¹ From complete tables prepared by Fred von Borgersrode of the Bureau of Educational Research, College of Education, University of Minnesota.

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dren are descendants of northwest Europeans, who come into puberty at somewhat later ages than do some other European groups, that the percentages here given exaggerate the real situation. The percentages would also be affected by the extent of over-ageness in a school system; in a system where vigorous efforts have been made to offset the tendencies making for over-ageness the actual percentages might be smaller than those shown here. They do, nevertheless, afford an approximation deserving of serious consideration. In so far as they are dependable they show that percentages of pubescents and postpubescents are small in Grade 4, but that

TABLE X. APPROXIMATE PERCENTAGES OF BOYS AND GIRLS IN EACH GRADE PUBESCENT AND POSTPUBESCENT (COMBINED)

SEX	GRADES								
	4	5	6	7	8	9	10	11	12
Boys . .	2.1	6.7	16.2	36.9	58.7	76.3	89.6	95.5	99.1
Girls . . .	4.6	12.8	30.1	56.9	78.1	90.3	97.9	99.1	99.8
Both . .	3.3	9.8	23.3	47.3	69.2	84.1	94.0	97.6	99.5

they accumulate with great rapidity after the fifth grade. By the opening of Grade 7 well over half the girls, more than a third of the boys, and almost half of both boys and girls have reached one or the other of these stages of development. Shortly after the opening of the seventh grade and long before the opening of the eighth grade a majority of the children have attained one or the other of these stages of maturity, the second of which follows rapidly on the heels of the first.

Educational implications foreshadowed. Presentation of educational implications resulting from the description of adolescents physically, and of the distribution by ages and grades of the points of onset, or early stages, of puberty, will for the most part be deferred until after the mental charac-

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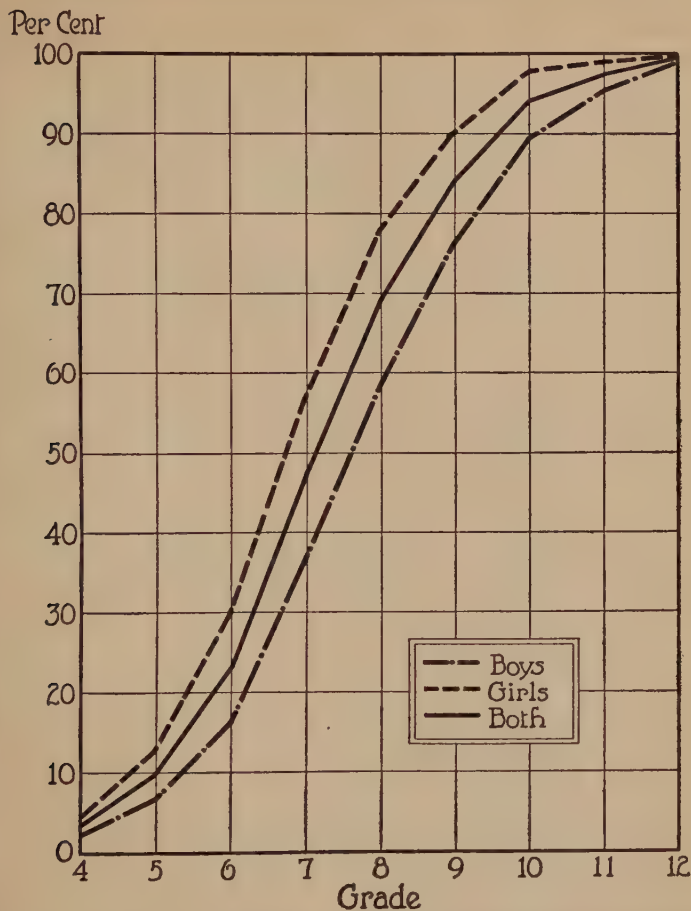


FIG. 11. Approximate percentages of boys and girls in each grade pubescent and postpubescent (combined)

teristics have been set forth in the section next following. However, a few outstanding inferences may well be presented here. Among the most obvious of these is that if it is assumed that the secondary-school period should begin

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where adolescence begins, — that is, with the onset of puberty, — the conventional high-school period, which opens with the ninth grade, when the pupil normal for the grade is fourteen years of age, begins too late for most children. The maladaptation of organization to stages of development is considerably greater for girls than for boys, but too obvious to be neglected even for the latter. Another inference is that since the changes in any large group of children do not come at any single age or in any single grade for all, but spread over a number of years, the changes in school organization should not be sudden. Further support is given to this conclusion of gradual change by the fact that in these data pertaining to the period when pubescence arrives it is the onset of puberty which has been emphasized and not the full period of adolescent development. At its briefest the early period of greatest change extends over two or more years. Nevertheless the extent of the physical changes should call for far-reaching educational changes, especially if the psychic changes now to be canvassed are at all comparable.

III. PSYCHOLOGICAL DEVELOPMENT IN THE ADOLESCENT

A field of diverging beliefs. Adolescence has just been seen to be a period of significant acceleration in physical development. On this there is approach to unanimity among those who have worked or written in the field. It is when we turn from the physical to the psychological changes in the nature of the child at adolescence that we move directly into the region of disagreement. There are on the one hand those who profess a belief in a parallelism of physical and mental growth; they say that the marked physical growth and changes are accompanied by mental changes fully as profound and at least equally significant educationally if not more so. On the other hand are those who contend that the acceleration is restricted to the physical and that the mental

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life of youth shows only a gradual development from pre-adolescence to maturity. It is therefore impossible for those who undertake to deal with the mental nature of the adolescent to escape entirely the issues involved. The aim, however, should be broader than merely to join with one or the other of these opinions and to engage in the discussion as a controversialist: it is preferable to evaluate both in the light of such evidence as is at hand, with all its justifiable implications, and arrive at working concepts of the mental nature and development of the adolescent.

The procedure to be followed in attempting this will be (1) to exemplify the contrasting opinions mentioned, (2) to illustrate the types of data that can be brought to bear on the problem, and (3) to arrive at tentative conclusions, which should be considered modifiable as more comprehensive and dependable data come to hand.

Illustrating the theory of "saltatory" mental change at adolescence. The American advocates of the theory of accelerated, or "saltatory," development in adolescence have been many. They began with G. Stanley Hall, who gave the theory its greatest momentum in his famous work "Adolescence," published in 1904. The theory has had many advocates both before this date and subsequently and is involved in whole or in part in much of the educational thinking and practice today. Among the most recent protagonists who have expressed themselves in print is Frederick Tracy, from whose book¹ several illustrative quotations will be made. The first quotation has been selected because the author summarizes in it the range of aspects in mental life of which he assumes acceleration to be characteristic:²

With the advent of puberty, and the beginnings of the adolescent period, there is a marked acceleration in the development of the whole psychic life. The mind, which has been expanding throughout childhood, now expands more rapidly. The intellect

¹ Frederick Tracy (35).

² Ibid. p. 43.

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essays larger fields of conquest in the way of knowledge. The emotional nature becomes endowed with a finer sensitiveness to the subtle shades of the beautiful and sublime. And the will seems to awaken to a new realization of its own power, and to attempt things that in the previous stages of life never presented themselves as possibilities. New instincts come into play, and new interests are developed.

1. *Thinking*. Inasmuch as special attention is to be given in the following evaluation to two main aspects of mental life — knowing and feeling — subsequent quotations from Tracy will illustrate his view on these. In discussing the “capacity to think” he makes a good deal of the development of *sensation* in its relationship to thinking. He says that “all the processes of representation and thought are dependent upon the functioning of the senses.” After stating that “the earlier years of life are notoriously the years of the reign of the senses” he goes on to say that “the very senses themselves are more acute in many respects” during adolescence. A few sentences referring to certain specific senses may be quoted:¹

It is believed that the adolescent discerns colors, and shades of color, better than the child. . . . The space qualities of bodies are now more accurately estimated than before. . . . What is true of the sense of sight is also true of hearing, as well as of the other senses.

But *memory* also, according to Tracy, experiences this saltatory development. He says in one place:²

The most noticeable features in the growth of the memory powers, as childhood passes into youth, are first, the rapid multiplication of memories, and second, the development of the power to unify memories into a system, and to hold in the mind, not only single memory images, but the connections and relations of these images to one another.

¹ Tracy (85), pp. 85–86.

² Ibid. p. 89.

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Further on he states, in amplification of the second feature of change referred to :¹

From about the twelfth year of life one may see, in boys and girls of normal development, a marked advance in this power of synthesis in memory and judgment. The mind of the small boy, like his pocket, contains a good many things, but these things are in no very obvious order or system. They do not stand in any very clear relations with one another. They are a miscellaneous lot. But with the age of puberty, the augmented ability to grasp and hold in the mind, not only single things, but the connections and relations of things, indicates an important stage in the development of the cognitive powers.

2. *Feeling*. Only a single quotation will be made to illustrate Tracy's beliefs as to development of the emotions in the adolescent :²

It goes almost without saying that youth is a time of deep and strong emotion. This is perhaps its most conspicuous feature. The adolescent craves for emotional experience almost as much as for food and drink. The earlier part of the period, up to the sixteenth or seventeenth year, is specially characterized by this capacity to feel and this craving for feeling stimuli. . . .

This marked development of the emotional nature in adolescence is commonly attributed to the unfolding of the sex functions, and this is no doubt one of its most important conditions. But it is not the only one, for, as we have seen, there occurs now an expansion all round, affecting not only the growth and organization of the body, including the brains and nerves, but also the intellectual capacities, and various forms of power and energy ; and all this expansion liberates fresh tides of feeling. Sexual development, while no doubt very central and potent in it all, is neither the sole cause of the quickening of the emotional nature, nor does it provide the only objects by which the emotions may be stirred. . . .

A prime factor in the deepening of the life of feeling is the expansion of the intellectual powers, and the unfolding of the capacities of judgment and reflection. . . .

¹ Ibid. p. 93.

² Ibid. pp. 75-76.

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The theory of gradual development. A writer whose influence gained large credence for the theory of gradual as opposed to accelerated mental development was Inglis. In supporting this theory he cited at length Thorndike and King, each of whom has taken exception to the theory of accelerated change in mentality. Earlier in his chapter he had laid the foundation for his opposition by citing results of measurement of children of different ages with respect to such functions as ability to discriminate between weights, speed of reaction, and various types of association and memory. He followed the excerpts from the writers named with an "evaluation of the two theories," from which the following quotations are made: ¹

In attempting to evaluate the two theories of development . . . it is necessary briefly to examine and interpret the data and arguments on which the theories depend. When the theory of saltatory development is thus examined it is found to rest on the assumption of the saltatory development of physical traits, an analogy between physical and mental traits, and certain evidence which is supposed to support the theory directly. . . . Growth in height and weight at adolescence especially is instanced.

Inglis then proceeded to question saltatory development even along physical lines, stating that "not all parts and organs manifest sudden maturity at puberty" and insisting that before even that portion of the theory is acceptable, there should be positive proof of "tangible connection between the physiological organs directly indicative of puberty and other physical and physiological traits."

He next returned to his objections to efforts at establishing the theory of accelerated mental development by analogy and by other questionable methods: ¹

When the none too well established theory of saltatory development of physical traits is made the basis of an analogy on which to build up a theory of saltatory development of mental traits, a

¹ Inglis (19), pp. 62-64.

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dangerous step is taken. Argument by analogy is always treacherous and always requires corroborative evidence. . . .

Direct evidence of the development of mental traits with age is of two sorts: (1) that obtained by careful quantitative measurement, and (2) that obtained from psychological introspection (analyzing one's own mental processes) and through the questionnaire method. Advocates of the theory of saltatory development have depended largely on the second of the two sorts of data. The dangers of introspection on the part of untrained persons are readily recognized. . . .

Arguments for the theory of gradual development rest largely on the results of . . . quantitative measurements. . . . Advocates of the theory hold that such data as we have, inadequate though they are for exact analysis, are indicative of continuous and gradual development in mental traits.

It is desirable to state, before leaving this illustration of opposition to the theory of accelerated development in mentality at adolescence and support of the theory of gradual development, that the *quantitative data referred to are restricted to the cognitive, or "knowing," phase of mental life* and that *a method (for example, the questionnaire method) may be discredited without disestablishing the phenomena which the method is supposed to have discovered*. The present writer has stated elsewhere that "it has been too readily assumed by some that discrediting this questionnaire method and denying the fact of profound change were accomplished by the same stroke of criticism. A method may be discredited and the phenomena with which it is concerned still exist."

Illustrative evidence on development in knowing. The results of investigations upon which Inglis depended for the data cited by him in support of the theory of gradual development certainly afford no evidence of an accelerated development.¹ For example, the findings of Gilbert's researches² on dis-

¹ Inglis (19), pp. 36-38.

² Cited by Inglis from J. A. Gilbert's "Researches on the Mental and Physical Development of School Children," in *Studies from the Yale Psychological Laboratory*, Vol. II.

crimination between weights, and on reaction time measured by thousandths of a second between the movement of a disk and making a contact by pressing down a key as soon as the disk was seen to move, give no evidence of more than a gradual development. For example, the median numbers of grams by which weights must differ in order that the median child is able to note the difference are, respectively, for the years 6 to 17 inclusive as follows: for boys, 13.0, 13.2, 12.2, 10.2, 8.6, 10.2, 7.6, 6.0, 5.2, 6.2, 6.0, 6.0; for girls, 16.8, 13.2, 11.0, 10.0, 9.2, 7.6, 7.6, 5.6, 7.2, 7.2, 6.8, 6.4. Attempts to chart the curves from these data do not disclose straight-line relationships, but this is owing to the small numbers of subjects represented. At the same time the irregularities of the resulting curves (not reproduced here) are not in harmony with the theory of accelerated development. The same is true for the data pertaining to the second type of measurement referred to. Since both measurements have to do with functions significantly related to sensation — although clearly not sensation in its simple form nor unaffected by experience — the data may at least be regarded as partial testimony for a theory of gradual development.

The studies drawn upon for data concerning various types of association and memory lead to similar inferences.¹ For instance, the results of measurement of memory of ideas for children of each year of age from eight to eighteen inclusive are, respectively, boys, 24.3, 28.7, 30.0, 32.9, 35.1, 36.8, 36.1, 36.5, 34.4, 34.6, 36.9; girls, 28.5, 31.0, 33.5, 36.4, 38.1, 38.5, 39.0, 39.1, 37.3, 36.6, 37.8. If the curves representing these data are drawn, they disclose nothing like acceleration in adolescent years. They might even be interpreted as showing retardation in this respect.

Probably the most dependable data available on the nature of mental development in adolescence are those of Baldwin

¹ Inglis (19), pp. 37-38, citing from compilations in Guy M. Whipple's "Manual of Mental and Physical Tests" (Part II), Warwick and York, 1915. 336 pp.

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and Stecher.¹ These investigators have reported the average mental ages in months and the average intelligence quotients of superior and average children. These averages have been computed from *consecutive measures for the same children*, a procedure especially valuable for the problem here concerned, as already pointed out in discussing the physical growth of children. Baldwin and Stecher have the following to say concerning the curves of mental growth and of intelligence quotients:²

The mental growth curves obtained by the individualizing method from consecutive measurements of superior and average boys and girls between the ages of 5 and 14 present at first glance the appearance of a straight line. The familiar parabolic character of the theoretical growth curve is lacking, since our data furnish us no determinations for ages 14 to 16, during which this slowing up of mental growth is supposed to take place.

It is apparent from these curves that superior and average children develop at different levels and that children of these different intellectual levels grow increasingly dissimilar with increase in chronological age. . . . The difference [for boys] of 10 points at 5 years has increased to 41 points at 14 years. The girls show similar differences.

This divergence in the growth curves of average and superior children has long been assumed as probable but has not heretofore been empirically demonstrated. . . .

The general straight-line appearance previously noted is especially apparent in the growth curve for boys. Further analysis reveals, however, *a very significant change in the trend with the approach of adolescence*.³ This is especially marked in the curve for girls, where there is a rise in mental development in the superior girls between the ages 11 to 12 and in the average girls a year later, between the ages 12 to 13. The superior boys show a similar acceleration in mental growth at about 12 — somewhat later than in the case of the superior girls. The boys of average mental ability have not yet shown this acceleration up to 14 years,

¹ Baldwin and Stecher (6).

² Ibid. pp. 10-15.

³ The italics are the present writer's.

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which is the latest age for which we have a sufficient number of cases. It seems unlikely that this rise in the curve of mental growth can be explained by defects in the measuring scale at the adolescent ages. There is no reason to believe that the scale was not equally well standardized at all ages. The increased incline of the curve extends, moreover, through several ages, and it is not probable that the tests would be too easy throughout these years.

TABLE XI. MEAN MENTAL AGE, IN MONTHS, OF SUPERIOR AND AVERAGE BOYS AND GIRLS FOR CONSECUTIVE CHRONOLOGICAL AGES¹

(Based on 487 Consecutive Examinations)

CHRONOLOGICAL AGE	Boys		Girls	
	Intelligence Quotient, 110 + (Superior)	Intelligence Quotient, 90-110 (Average)	Intelligence Quotient, 110 + (Superior)	Intelligence Quotient, 90-110 (Average)
5	70.6	60.7	72.0	62.5
6	88.7	75.6	85.0	73.9
7	102.2	87.4	102.2	88.9
8	118.7	100.4	116.3	100.9
9	131.4	109.2	131.1	112.9
10	144.0	117.7	145.5	122.4
11	160.5	130.5	158.5	133.3
12	181.0	143.1	184.1	141.5
13	190.0	157.2	196.0	166.5
14	208.9	168.0	201.0	182.9

The mental-growth curves of the boys and girls cross repeatedly. There is, however, a tendency in the earlier ages for the average girls to be a little higher in mental age than the average boys, in the later ages for the girls of both groups, to be a little superior to the boys. While not without exception, this adolescent superiority of girls is in accordance with other facts indicative of the earlier maturity of girls.

The authors then refer to the movement in recent years to discredit marked changes in intellectual traits at adolescence, a movement which is "probably a reaction to

¹ Baldwin and Stecher (6), p. 10, Table I.

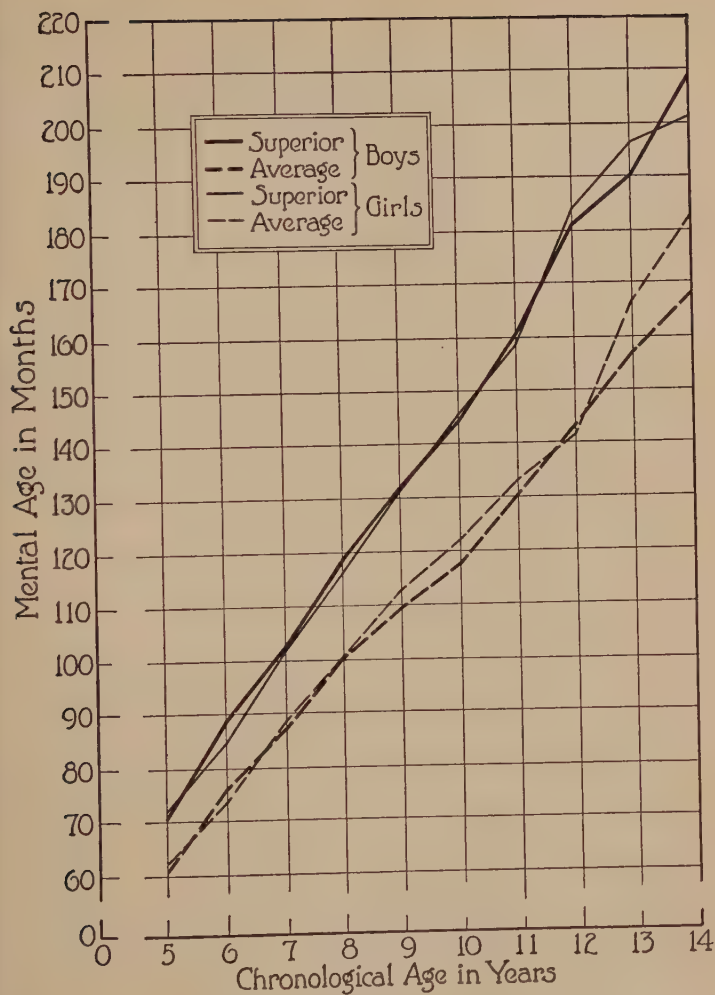


FIG. 12. Mean mental age in months of superior and average boys and girls for consecutive chronological ages. (After Baldwin and Stecher)

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undue sentimental emphasis . . . of twenty years ago. . . ." It is their belief that, "although there is obviously no time in the mental development of the child when new mental traits suddenly appear, the rise in the mental-growth curves apparent at the ages of 11 to 14 may be attributed to increased strength of traits that have long been developing, or to increased mental vigor similar to the accelerated growth in physical traits."¹ It is pointed out that the mental-growth curves are "strikingly similar" to the physical-growth curves presented in the preceding division of this chapter (Fig. 7).

In the main the curves for intelligence quotients show characteristics similar to those for mental age. As might be expected from what we can learn from other sources with regard to the constancy of the I. Q., these curves are approximately horizontal; but they disclose spurts — not large, but nevertheless unmistakable — at ages corresponding to those found in the curves for mental growth.

TABLE XII. MEAN INTELLIGENCE QUOTIENTS OF SUPERIOR AND AVERAGE BOYS AND GIRLS FOR SUCCESSIVE CHRONOLOGICAL AGES²

CHRONOLOGICAL AGE	BOYS		GIRLS	
	Intelligence Quotient, 110 + (Superior)	Intelligence Quotient, 90-110 (Average)	Intelligence Quotient, 110 + (Superior)	Intelligence Quotient, 90-110 (Average)
5	117.6	101.2	119.9	104.1
6	123.3	105.0	118.0	102.6
7	121.6	104.0	121.7	105.9
8	123.6	104.6	121.1	105.1
9	121.7	101.1	120.5	104.6
10	119.9	98.1	120.3	102.1
11	121.5	98.8	119.8	99.9
12	125.7	99.4	127.9	98.2
13	121.5	100.8	125.7	106.7
14	124.3	100.0	119.7	108.9

¹ Baldwin and Stecher (6), p. 12.

² Ibid. p. 14, Table II.

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In a supplement to the study from which the preceding excerpts have been made, the same investigators report the mental ages for superior and average boys and girls for two more years; that is, for fifteen and sixteen years of age. The following quotation includes the most significant reinterpretations from data covering the extended period:¹

The curves have in general the same appearance as those in the previous study with the exception of the curve for the average girl, which lies much closer to the average boy's curve than

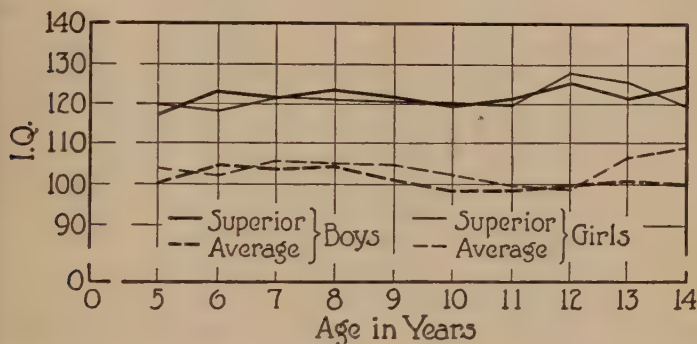


FIG. 13. Mean intelligence quotients of superior and average boys and girls for successive chronological ages. (After Baldwin and Stecher)

formerly, probably due to the addition of more average girls of this age. The average curves are approximately straight lines, which show that these children are comparable to those on whom the scale was standardized. In contrast with the straight-line average curves, the superior curves show fluctuations at the adolescent ages, indicative of the earlier mental development of superior children. Both the superior and average girls of this group are in advance of the boys at the adolescent ages — 12 to 14 — when measured by this scale. As previously pointed out, this adolescent spurt is analogous to the adolescent acceleration so frequently found in physical-growth curves in height, weight, breathing capacity, and other physical traits.

¹ Baldwin and Stecher (5), pp. 557-559.

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The writers, however, are aware that the finality of any conclusions along these lines is somewhat endangered by deficiencies in our instruments of measurement:¹

Unfortunately we have not, in the present state of development of the science, any measuring instrument that at all approximates the apparatus for measuring physical growth. The cheapest measuring stick is superior, both in equality of units and in extent, to our mental measurement scales. These poor mental tape lines wrinkle and stretch in places, and some one has cut off a little from both ends! The unit of measurement in mental-growth scales is not an absolute unit such as the centimeter or the kilogram. . . . An inch of growth in height is the same between 5 and 6 years or between 12 and 13 years. There is good reason to believe, however, that two months' mental growth may mean a very different thing at these two periods. The amount of mental growth for two mental months at the earlier age may be only half that of two mental months at the later age. We do not know. We assume that the difficulty of the tests within the scale takes this into consideration and meets the differences fairly accurately. By the very fact of such construction, however, mental-age scales tend to conceal any differences in the rate of mental growth that may exist. If any adolescent acceleration appears, it is all the more significant.

Two other investigators, Murdock and Sullivan, present data from which they conclude that there are increases in the rates of mental growth for boys and girls at the same time that the spurts in adolescent physical growth take place, these accelerations giving girls an average excess in intelligence quotient, which is displaced a few years later by an average excess for boys. However, they do not "feel justified in assuming anything about the amount of the adolescent mental-growth acceleration, except that it is probably much smaller, comparatively, than the physical spurt. The unit of mental-age scales, by its very definition, is of such a nature that it tends to conceal any differences in rate of growth."²

¹ Baldwin and Stecher (5), pp. 559-560.

² Katherine Murdock and Louis R. Sullivan (24), pp. 353-354.

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Summarizing these evidences on the nature of growth in the cognitive phase of mental life during adolescence, one may say that they are not in complete harmony nor sufficiently dependable to warrant final conclusions. If it is assumed, as is done by the present writer, that on account of the procedure in investigation the evidences supplied by Baldwin and Stecher are among the most dependable we have, it may be concluded that there is some acceleration in this phase at adolescence — at least for superior boys and girls and average girls. At most, however, *the change is far from cataclysmic, and does not seem to argue for a conclusion of significant fundamental difference in the kinds of mental traits involved in cognition.*

Relationship between physical and mental growth. Having thus far dealt with the rates of growth in physical traits and in that phase of mental development which has first lent itself to measurement, — that is, knowing, — it is now appropriate to consider briefly the relationships between these rates. Here again we rely on the valuable work of Baldwin and Stecher.¹ One method of investigating the relationship was to ascertain the mean mental age at each chronological age from five to fourteen. The children represented in other portions of the study were, on the basis of general physical development, divided into four groups designated physiologically as (1) accelerated and (2) retarded boys and (3) accelerated and (4) retarded girls, the division being “on the basis of the physical measurements without knowledge of the mental age of the child.” The mean mental ages (not reproduced here) of the physiologically accelerated groups are generally higher than those of the retarded groups. These averages also show the influence of adolescent acceleration. This may be seen in the following selection from these mean mental ages: at the chronological age of seven they are 101.3 and 97.1 months for physiologi-

¹ Baldwin and Stecher (6), pp. 55–58.

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cally accelerated and retarded boys respectively and 99.9 and 95.0 months for physiologically accelerated and retarded girls respectively; at twelve the corresponding measures are 171.1, 150.1, 176.7, and 168.2 respectively; and at fourteen they are 194.2, 166.2, 194.9, and 183.7 respectively. These measures are to be interpreted as signifying that at an earlier chronological age the mental ages of boys and girls of the same physical groups are about equal, boys in fact being slightly superior to girls; at twelve years of age a spurt at adolescence for girls has placed both groups notably in advance of the corresponding groups of boys; again, at fourteen years of age the accelerated boys have re-matched mental strides with the girls, although analogous equivalence with retarded girls has not yet been attained by the retarded boys.

These investigators also report for the same children the following coefficients of correlation:

	BOYS	GIRLS
Between height and mental age . . .	0.84 $\pm$ 0.02	0.89 $\pm$ 0.02
Between weight and mental age . . .	0.86 $\pm$ 0.02	0.77 $\pm$ 0.04
Between X-ray ¹ and mental age . . .	0.873 $\pm$ 0.021	0.869 $\pm$ 0.023

It is admitted, however, that the size of the coefficients is increased by the wide range in chronological ages. But even after computations are made with chronological age kept constant, there is still a positive correlation of 0.53 between height and mental age. Computations of a similar sort (that is, partialing out chronological age) for X-ray measurements ("exposed area of the carpal bones") and mental age resulted in a coefficient of 0.09, indicating a negligible relationship. Freeman and Carter also found a high measure of relationship between their "ossification ratio" and mental age: for boys, 0.73; for girls, 0.75.² But with chronological age

¹ "Exposed area of the carpal bones of the right wrist."

² Freeman and Carter (17), pp. 267-268.

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partialled out, these coefficients dropped to proportions similar to those found by Baldwin and Stecher. This is merely to say that anatomical development as shown in the growth of the carpal bones is related only in a negligible degree to growth in mentality, although growth in height is significantly related to growth in mentality.

The time of arrival of mental maturity. The question of the age at which intelligence matures has some importance for a discussion of the nature of the adolescent mind, but is so involved in controversy as to make it difficult to render a judgment on it that will come anywhere near to being generally acceptable. In the consideration of this question during the earlier stages of the rapid development of mental measurement there was a partial approach, emanating from investigations by Terman, to agreement in some circles that the normal adult intelligence is reached at sixteen years of age. Then came evidence seeming to point to the earlier arrival of mental maturity. Conclusions from the wide-scale application of tests of intelligence in the army during the war period placed it at about thirteen years of age. Subsequently Dearborn, from the findings of the application of tests devised by him, decided that the average adult mental age is approximately $14\frac{1}{2}$ years.¹ More recently Freeman has contended "that mental development continues even past the age of sixteen, and at least up to seventeen or eighteen." In reviewing the evidence at hand pertaining to the question Freeman finds that tests differ widely in the extent of the opportunity they give for the more mature individuals to demonstrate their superiority, and that actual retests of the same individuals show mental growth to continue substantially without diminution to the end of the high-school period.² The discriminating way in which he has scrutinized the evidence available warrants us in regarding his conclusion as the most plausible one on the subject.

¹ Walter F. Dearborn (15), p. 321. ² Frank N. Freeman (16), pp. 359-361.

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Changes in emotional life and interests during adolescence.

In this treatment of the nature of mental development during adolescence it remains to deal briefly with changes in emotional constitution. The affective life of youth has not yet been accorded attention here, the discussion having been restricted to cognition. Other phases of mental life, such as the volitional, will not receive separate treatment; the inevitable overlapping of the classifications and the interrelationships of any one of these with the others assure them at least partial representation in the discussion as a whole.

On account of the relatively intangible character of the traits represented, it is impossible to marshal a large array of facts based on objective measurement to support a belief in profound emotional change at adolescence. Concerning physical traits, there is, as has been illustrated, a considerable body of dependable factual materials, and such evidence is not entirely lacking in the realm of the cognitive phase of mental life. Nevertheless, the want of experimental proof of profound change arising out of what has been up to the present a relatively intangible field for investigation does not justify the view that there is no such profound emotional change. Furthermore, *no definite decision concerning gradual mental development is acceptable which leaves out of account, largely or entirely, its affective side*, as has sometimes been done in recent years. To conclude by analogy that because no profound change takes place in such a phase as cognition, no profound changes occur in some other phase, is in some respects as fallacious as to argue that because there is a spurt of physical change, there is a corresponding spurt in mental development. Both arguments are attempts at proof by analogy.

The trend of better judgment — again admittedly unsupported by direct factual evidence — is toward acceptance of adolescence as a period of significant emotional change. Thus Pechstein and McGregor, in the most comprehensive

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recent treatment of the psychology of adolescence and the best recent interpretive and critical summary of the literature in the field, investigational or other, state that "*emotion, both as to its strength, rapidity of growth, and disturbance, rates as one of the most critical and prominent features of adolescent mentality.*" At the same time these authors warn "against entertaining a saltatory viewpoint regarding these or any other aspects of adolescent mentality."¹

The chief causal basis commonly cited for the emotional changes of adolescence is the marked anatomical changes which have been reviewed in earlier sections of this chapter, with their accompaniments of glandular development already briefly described. It is, however, worth while to keep in mind the following more comprehensive list of conditioning factors,² which includes those just mentioned.

(1) Because of the rapid anatomical growth taking place, the parallel emotional states doubtless become quantitatively, not markedly qualitatively, different from those of preadolescence.

(2) Much of the emotional strength shown through the period is assignable, not so much to the new nature of youth, as to the far wider range of stimuli and situations the youth naturally is facing, these calling into direct activity emotional reactions long since potential and no doubt previously operative to a degree.

(3) Habit adjustments of the primitive emotional patterns have been forming for years, and these have now become sufficiently extensive as to attract and often compel attention.

(4) With the gradual expansion of the intellectual life the adolescent is thinking more deeply into his experiences . . . and a more complex and intense emotional setting is automatically aroused.

(5) The substitutional or compensational aspects [of behavior as related to] instinct are now at white-heat for the emotions, presumably because, in the conditions stated in "1" above, the adolescent must seek expression by some escape-mechanism for reactions not considered timely or appropriate to his own day and generation.

¹ Louis A. Pechstein and A. Laura McGregor (25), pp. 105, 107.

² Ibid. pp. 107-108.

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Another characteristic increasingly perceived as arriving with the emotional changes of adolescence is the increased disposition to respond to *social* stimuli. A number of social instincts are operative before adolescence, among them the maternal instinct, gregariousness, and the desire for approval and "showing off." But with adolescence there comes a quickening of interest in and response to the social relationships that is deserving of attention in the educational program for children of these ages.

The increased interest of the adolescent in matters *religious* is also often pointed out, although it is not usually explained through the avenues of the social impulses to the extent that it should be. Such an explanation is included, among others, in the following quotation:¹

In the development of adolescent personality — the total potentiality of response an individual possesses for meeting life situations — the religious aspect plays a prominent rôle. Lancaster, Starbuck, Coe, Hall, and others have shown that, if the statistics of conversion be plotted, the curve rises irregularly through the early teens, reaches its highest point at sixteen, then falls irregularly toward maturity. Furthermore, Lancaster reports that experiencing a religious crisis akin to conversion tends to be almost universal. . . .

The causes for the rapid development of the religious personality are not far to seek, as they do not take the psychologist away from his general thesis that all the determinants of action are within the individual. . . . This postulates no specific instinct of religion coming into play at adolescence or any other life period, nor does it give place for registering the touch of the Divine considered so fundamental in certain theological systems. Rather, with gradual accumulations of experience, the maturing of the sexual and social instincts and their attendant emotions; the often described readjustment process toward life; the necessary transition from egoism to altruism, developing the heliocentric (social) in rivalry to the fairly egocentric (individual) attitude;

¹ Pechstein and McGregor (25), pp. 149-150. The last italics in the excerpt are the present writer's.

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and finally, as a natural result of securing all sorts of conditioned ways of responding and perhaps the development of "escape mechanism," the adolescent often becomes "converted"; that is, he definitely decides *to turn from* the older moorings of self-love and self-interests and even sin and seeks to revamp his life *in keeping with the conventionalized pattern set by formulated religion and approved by the older members of his social group.*

Before leaving this discussion of the emotional life and interests of the adolescent a brief quotation will be made from Terman's introduction to a little volume by Bigelow on the educational and hygienic problems of adolescence, in which the latter had among other things challenged some of the extravagant popular notions of the changes taking place during this period:¹

He [Bigelow] is unquestionably on solid ground in his contention that the normal changes of adolescence have often been treated with colorful exaggeration. He is right in insisting that these changes are in the main gradual rather than cataclysmic, and that the problems of youth are in many respects a continuation of the problems of childhood. *This is not to deny that the ripening of sex instincts is accompanied by profound reverberations in the physical, mental, and moral life. It is; and there can be no doubt that these reverberations are likely to be accentuated beyond their normal intensity by the usual influences of the social environment.*²

Psychopathology in adolescence. The significant changes, physical and mental, which have been outlined are fortunately usually experienced by developing youth without notable aberrations from normality. There is, nevertheless, an incidence of disturbances during this period large enough to merit the serious attention of those having to do with young people of adolescent age. Among those that appear more frequently are dementia præcox, hysteria, phobias,

¹ Bigelow (9), Introduction.

² The italics are the present writer's.

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automatisms, and the like. The first of these is described by Pechstein and McGregor as follows:¹

A slow decline of mental strength through a gradual weakening, primarily of the volitional and emotional life. . . . While most frequent for later adolescence, the condition may appear at any time during the period. The symptoms may be varied — persistent lack of interest, listlessness, unwillingness to engage in normal physical and intellectual activity, day-dreaming, as well as pronounced "attacks," such as maniacal excitement, melancholic frenzy and depression, catatonia (bodily rigidity), stupor, mentally confused, delusional, and hallucinational. . . . The sources of dementia præcox are quite likely to be found in the unusually rapid growth of activities of adolescence, special temperamental make-up of certain individuals, preadolescent training, perhaps in some instances a disease-heredity.

The symptoms of hysteria are more generally known than are those of dementia præcox. Among these are susceptibility to weeping, laughter, or aberrations of temper, and they may extend to convulsive seizures, anæsthesias, etc. Although they sometimes affect the boys, they more commonly affect girls and women, especially girls in the teens. From Burnham's review of the reports on epidemics of hysteria among girls in schools² one may conclude that the incidence is greatest from the age of eleven to fifteen or sixteen. The observations reported are of European schools, but this can hardly subtract from their significance for an understanding of the nature of children during the period of adolescence.

The fact that these afflictions are in some degree peculiar to adolescence, even though far from general during that period, affords partial justification, despite protestations to the contrary, for looking upon it as a time of "storm and stress" and for adapting the educational régime to the requirements of psychic normality.

¹ Pechstein and McGregor (25), p. 137.

² William H. Burnham (12), pp. 324-333.

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IV. THE MEANING FOR SECONDARY EDUCATION

Adolescence a period of pronounced change. One leaves a recapitulation of the evidence of growth and development such as has just been essayed with a general impression that youth, or adolescence, comprehends a period of significant change. It is a period of rapid physical development, comprising a time of pronounced acceleration of growth in stature, weight, breathing capacity, anatomical development, and the like. More than this, it is the period of arrival of sex maturity with its accompanying primary and secondary sex characteristics, rapidly differentiating the adolescent from the preadolescent in these important respects. Such evidence as we have on mental development in adolescence is not as unequivocal as that pertaining to physical development, but there is some ground for the belief in accelerated development even here. As far as can be judged from data and opinions reported, the acceleration is less marked for the cognitive phase of mental life than for the affective phase. It is not easy to shake the belief in a profound change in the affective phase of life and in a genuine acceleration in the social impulses and allied interests. The general conclusion is that while adolescence (especially in its earlier stages) is a period neither of strictly saltatory development nor of strictly gradual development, we can assert without quibbling that it is a *period of pronounced change* which must be taken into account educationally.

Inferences for education. 1. One important inference for the organization of education has already been drawn, based on the time of onset of the pronounced changes. This has been seen to be earlier for almost all boys and girls than the traditional point of division between elementary and secondary schools. If these changes require that preadolescents and adolescents receive treatment so markedly differentiated as to call for their separation, the former point of division be-

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tween eighth and ninth grades comes too late. The rapid downward extension of the secondary-school period, in recent years, to include the seventh and eighth grades is better adjusted to the time of change in nature.

2. On the other hand, although far-reaching modifications in education are necessary to adapt it to the pronounced natural changes during adolescence, these adaptations need not be sudden or built on cataclysmic assumptions. Even though pronounced, the changes in the individual are not cataclysmic. Moreover, the age-distribution of pupils in any grade concerned and the variation in rates of development at any stated age are so wide as to negate any belief that we have in a given group of pupils anything like complete homogeneity with respect to stages of development. This would be especially true from the fifth grade perhaps as far as the eleventh. Then, too, the changes are quantitative rather than qualitative, since writers like Moll and Freud posit the beginning even of sex life years before the first appearance of the external signs of puberty. In this connection it is pertinent to note that the junior high school is sometimes appropriately referred to as the "transition" unit in the school system.

3. The rapid changes in physical nature call for adjustments in the program of physical education, inclusive of physical training and health education. The wide variation in the age of arrival of the primary and secondary sex characteristics and the accompanying acceleration in growth should be taken into account in administering courses in these fields. Boys and girls must now be given differentiated training, not only in the types of physical activity in which they engage but also in the personal and sexual aspects of hygiene. The need of attention to sexual change in its psychic and social aspects will be emphasized below.

4. There appears to be no need for pronounced modifications in the methods of education for the purpose of adapting

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them to the changes in cognition *alone*, since, as far as may be judged from the evidence presented, there is less pronounced acceleration in this respect than in others. Certainly there is little ground for the former demand for a training program for children of adolescent age involving much more in the way of "reasoning" than was thought to be possible for children in preadolescent years. However, mentality is more than cognition only, and demands for modifications suited to pronounced changes in its other aspects may call for somewhat different exercise of the cognitive powers.

5. There is some special significance for the secondary school in what was presented concerning the age of attaining mental maturity. If we assume that Freeman's conclusion refers to the *average* time of arrival of maturity, we may infer that many pupils are reaching their mental maturity within the secondary-school period, even if this is regarded as extending no further than the twelfth school year. Others — perhaps most pupils — do not attain it until later, but are, nevertheless, nearing it. All must, therefore, be in a state of development where they are increasingly ready to adjust to the problems of their callings and to plan their careers. This consideration thus joins with others to recommend that the secondary-school period be one of educational and vocational guidance.

6. The acceleration of social impulses in early adolescence may be recognized and utilized in the curriculum and in the allied or extra-curricular activities. The material of the courses requires increasing socialization in this period, with greater emphasis on matters of civic, vocational, and broadly social import. Methods of instruction, too, should experience an analogous enlargement of socialization. Similarly, the spontaneous social activities manifesting themselves in this period must be encouraged and directed rather than ignored or suppressed, as is often done. This is not to deny the existence of such impulses in preadolescence, nor to

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assume an inappropriateness of earlier socialization; it is merely to point out the enhanced appropriateness of social motives in the period under consideration.

The intimate relationship of social activities to recreation and the importance of both these in developing appropriate and wholesome attitudes of the sexes toward each other call to mind a picturesque yet sensible admonition from Jane Addams. This admonition was not directed specifically to those in charge of schools, but it may well be taken to heart by educators. Miss Addams urges us, through a revival of folk songs and dances, to "fit to this gross and heavy stuff [of sex] the wings of the mind, to scatter from it the clinging mud of banality and vulgarity," and to "speed it on through our city streets amid spontaneous laughter, snatches of lyric song, the recovered forms of old dances, and the traditional rondels of merry games. It would thus bring charm and beauty to the prosaic city and connect it subtly with the arts of the past as well as with the vigor and renewed life of the future."¹

7. The next inference for secondary education is clearly associated with the last and is inseparable from it. It is given separate mention because of its great importance. This period is the opportunity of the school for moral guidance and inspiration. The adolescent, for his own and society's good, should be encouraged in his moral, religious, and altruistic proclivities. Speaking dramatically of what she calls youth's "thirst for righteousness," Miss Addams says:²

We may cultivate this most precious possession, or we may disregard it. We may listen to the young voices rising clear above the roar of industrialism and the prudent councils of commerce, or we may become hypnotized by the sudden new emphasis placed upon wealth and power, and forget the supremacy of spiritual forces in men's affairs. It is as if we ignored a wistful, over-confident creature who walked through our city streets

¹ Jane Addams (1), pp. 20-21.

² Ibid. pp. 161-162.

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calling out: "I am the spirit of Youth! With me all things are possible!" We fail to understand what he wants or even to see his doings, although his acts are pregnant with meaning, and we may either translate them into a sordid chronicle of petty vice or turn them into a solemn school for civic righteousness.

8. Last, but far from least in significance, is the need for conserving the interests of normality during what is likely to be an emotionally stressful period, one in which the socially advisable inhibition of new-found powers sometimes brings on behavior more or less psychopathological. We are still sadly wanting in exact information on this important problem of adolescence, but are increasingly of the conviction that much more is necessary than a single policy of repression. Although this is not the place for mapping out a complete program of constructive activity, it is not beside the point to suggest that many cases of abnormality could be forestalled by a straightforward treatment of sex nature sometime early in adolescence or before it. The setting up of right kinds of "conditioned reflexes"¹ and "sublimations" is also essential. In cases already pathological the use of some kind of psychic therapeutics under expert guidance may be necessary.

QUESTIONS AND PROBLEMS

1. Compare the growth curves for sitting height, chest girth, strength of right forearm, etc. as reported by Baldwin (3), with those presented in this chapter, and draw conclusions from the comparison.

2. Why do growth curves based on consecutive measurements of the same individuals through a period of years show greater acceleration than do averages of single measurements of large numbers of children at the different ages?

3. Generalize from the facts of physical growth during adolescence.

¹ Burnham (12), chaps. iii-vi.

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4. Apply the percentages of pubescents and postpubescents to the age-grade distribution for any large city school system and compare the results with the percentages of pubescents and postpubescents as estimated for Minnesota.

5. Map out and draw the curves for the illustrative data on weight discrimination and memory of ideas quoted on page 76 and draw conclusions as to development in the respects concerned.

6. How do age-grade distributions of pupils help to show that changes in school organization for the purpose of adapting it to the pronounced changes in pupils during adolescence should be gradual rather than cataclysmic?

7. How does the encouragement of extra-curricular activities comport with the nature of pupils during adolescence?

8. How is the problem of coeducation influenced by the differences in physical and mental development of boys and girls?

9. What are the advantages and disadvantages of sex segregation, either partial or complete, in high-school education?

10. Find what is said by leaders in the field concerning the needs, the methods, and the content in sex hygiene.

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III

SECONDARY-SCHOOL PUPILS — VARIATION AND SELECTION

I. VARIATION AMONG PUPILS

The factors of variation. In the foregoing chapter we have considered secondary-school pupils as to physical and mental growth; it is now appropriate to turn to their characteristics as determined by variation and selection. Before proceeding to this consideration of characteristics, however, it is advisable to present the briefest statement feasible of the factors of variation. The factors recommended to be kept in mind are considered somewhat more applicable than those often proposed, since they take cognizance of the special problems involved in the period of education with which this volume deals. The list must include, of course, the conventional categories of (1) *heredity* (in the sense of what is transmitted through the germ plasm) and (2) *environment*. It is also of great importance to take into account the differences determined by (3) *sex*. It is imperative, likewise, when dealing with the secondary-school population to have the factors of variation include the degree of (4) *maturity* and the degree of (5) *selection*.

1. There is little occasion to go into an extended discussion of the meaning and influence of each of these factors. Students of education are usually aware (at least in a general way) of the import of biological *heredity*. It may, nevertheless, be desirable to state that it embraces the inheritance of both physical and mental traits, and that rather definite limits on the possibilities of training are set by the inherit-

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ance with which nature has endowed the individual. If space permitted, this would be the place to discuss at length the differences in individuals attributable to race; for instance, the white, or the black, or the yellow. In summary of the best modern point of view with respect to differences between races in the matter of mentality (which, where schools are concerned, is the more important of the two groups of traits), one may quote Thomas, who said, "Present-day anthropology does not pretend that any of the characteristic mental powers, such as memory, inhibition, abstraction, logical ability, are feeble or lacking in any race,"¹ and Boas, who said, "There can be little doubt that in the main the mental characteristics of man are the same all over the world."² This denial of differences in *kind* is not at the same time a denial of differences in *degree* of endowment in mental traits. On this point there is increasing acceptance of the belief that while there is probably some difference in degree of endowment in mental traits as between any two races, these differences are not nearly so large as those among individuals within any single race.

2. Among *environmental influences* are home conditions (inclusive of intellectual traditions), occupations, and recreational and other interests of members of the family; neighborhood surroundings; and the kind of education afforded by school, church, or community. With these are properly included what Inglis referred to as the "important group of environmental forces [which] includes all those social customs, conventions, institutions, modes of thought, action, and feeling to which the individual falls heir by virtue of being born into any given society or social grouping."³ To these he applied the term "social heredity." This social

¹ William I. Thomas, "Race Psychology: Standpoint and Questionnaire, with Particular Reference to the Immigrant and the Negro," *American Journal of Sociology* (May, 1912), Vol. XVII, pp. 725-757.

² Franz Boas, *The Mind of Primitive Man*, p. 105. The Macmillan Company, 1911.

³ Inglis (14), pp. 95-98.

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heredity of secondary-school pupils coming from homes of American, Italian, Scandinavian, or Hebrew parentage is probably much more significant in making for individual differences than are the differences in original traits and capacities among these ethnic or language groups.

Without attempting to engage in the perennial and still inconclusive debate over the relative importance of heredity and environment in determining characteristics, it may be said that both are profoundly influential, and that of the two the influences of heredity are at least the more inexorable.

3. Differences among secondary-school pupils attributable to *sex* may be better discussed by dividing them first into physical and mental differences and then re-dividing the mental into differences in mental processes and in interests, tastes, and the like. The notable differences between boys and girls with respect to physique have already been amply illustrated in Chapter II. It is worth repeating that they become manifest near the opening of the new and extended period of secondary education.

Boys and girls are not so readily compared with respect to the mental processes. We may infer from what has already been shown in Chapter II that an acceleration for girls in earlier pubescence gives them an average mental age somewhat in advance of that for boys, but that close on the heels of this acceleration comes another for boys which puts them somewhat in advance of the girls. Nevertheless, the difference between the averages for the two sexes is not great at any point. Other investigations show one sex superior in some respects, and the other in still other respects. For example, Mrs. Woolley¹ found that in rote memory of nonsense syllables and retention after one week women tested better than men, that in ingenuity tests men performed better than women, and that in a test for general information they

¹ Helen B. Thompson (Woolley), "Psychological Norms in Men and Women," The University of Chicago Contributions to Philosophy, Vol. IV (1903), No. 1.

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did about equally well. With this test weighted toward English literature women did better than men, but with it weighted toward physics men did better than women. Bonser, in a study of reasoning ability in boys and girls,¹ gave tests for mathematical judgment, controlled association, selective judgment, and interpretation of poems. In Grades IV-VI boys did better than girls in the first three tests, and girls excelled in the fourth test. The total scores for boys were larger than for girls up to the age of twelve years, after which they were larger for girls. As might be expected from what has already been reported, the excess for girls was most marked at twelve and thirteen years.

Tests in school subjects indicate analogous differences: boys have demonstrated some superiority in reasoning ability in arithmetic and in tests in science and in history; girls have done better than boys in oral reading and in spelling. After the middle grades — that is, after Grades IV and V — girls on the average demonstrate superiority in scholarship as this is ordinarily measured in the schools, a superiority which is maintained even during college years.

The slight superiority in general intelligence of girls during early adolescence cannot account for the specific differences between boys and girls and for the *persistent* scholastic superiority of girls to which reference has just been made. Some other influences must be at work to bring them about, and these in all probability are (1) interests, tastes, and the like, or (2) the more rigid social control of girls than of boys, or (3) both these influences working together. There can be no denying that the interests and tastes of the two sexes differ. This shows itself clearly in the high school in the more extended election of courses in science by boys and in foreign language by girls. Whether such differences in interests and tastes are themselves determined more by inborn sex traits

¹ Frederick G. Bonser, *The Reasoning Ability of Children*. Teachers College, Columbia University, 1910. 133 pp.

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or by the environment and control is difficult to say ; we are perhaps correct in saying that many of them are affected by both, in some instances nurture enhancing the inborn tendencies. We are also correct in our belief that these differences in interests, tastes, and attitudes of boys and girls are more significant for the secondary school than are the small differences in mental capacity.

4. There should be little need of more than mentioning again the importance of maturity as a factor of variation during the secondary-school period. This, as we have seen, is a period of accelerated development, when pupils formerly homogeneous may, during the span of a few months to a few years, move rapidly toward heterogeneity. This is especially true of the two sexes in comparison with each other, but it is also to be said of groups of either boys or girls of about the same chronological age. The secondary school has a large task in adjusting itself to this increasing diversity.

5. The last factor of variation to be emphasized as significant is the kind and degree of *selection* of secondary-school pupils. This is not ordinarily regarded as a factor of variation, and in a sense it is not strictly logical so to consider it. On the other hand, it is profoundly influential in subtracting from or adding to the types of pupils to be found in schools on this level. Illustration of the potency of selection in affecting the diversity of the high-school population is afforded in the frequent reference in educational literature to the recent great influx of youth into upper and high-school grades. This influx has already been described in the earlier portions of Chapter I, but may well be demonstrated again from other sources. Thus Keener, comparing the enrollments in Grades IX-XII in 1912-1913 and, ten years later, as percentages of the enrollments in the first grade in corresponding years, finds these percentages to be, respectively, as follows : 21, 12, 7, and 6 in 1912-1913 and 46, 28, 14, and 11 in 1922-1923. When these two sets of percentages are

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added they give totals of 46 and 99, which means that the proportion that those enrolled in the high-school grades were of the first-grade enrollment had more than doubled during the decade. There was also a marked increase in Grades VII-IX. Discussing the significance of this increase Keener says:¹

A large number of school administrators and high-school teachers believe that the general level of mental ability has been lowered by this rapid influx of high-school pupils. If this be true the small proportion of elementary-school graduates who formerly attended high school must have been those of higher mental ability. Now since practically all pupils enter high school, we are getting not only those of high mental ability but those of low mental ability as well.

A comparable influx, measured after a somewhat different method, is shown for Cleveland in the earlier portions of Chapter XV. Other instances could readily be cited, as well as additional statements of the belief that these rapid accessions of pupils are accompanied by greater diversification among them. Notwithstanding the influx in the several sections of the country, by no means all children of secondary-school age are attending school; thus it is certain that some kind of selection is still going on. Therefore, after several pages illustrative of the variation obtaining in several respects among youth of secondary-school age, it is proper that the next section of the chapter should consider in some detail the manner by which selection proceeds.

Variation in age. There are several respects in which variation of pupils is to be demonstrated. The list can by no means be regarded as comprehensive, since the purpose here is for illustration only. They are (1) *age*, (2) *physical characteristics*, (3) *intelligence*, (4) *ability in certain school subjects*, and (5) *tastes and interests*. To some extent recourse is taken to materials in the foregoing chapter, but for the most part additional data are presented.

¹ E. E. Keener (16), pp. 113-114.

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Everyone is more or less cognizant of the wide variation in age in any one secondary-school grade or other grade. This has already been shown in Table IX, Chapter II (see also Fig. 14). If we consider the distribution for the seventh grade, we find that the age-range is as wide as from 9.5 to 18 years — a range of 8.5 years. The largest number of pupils

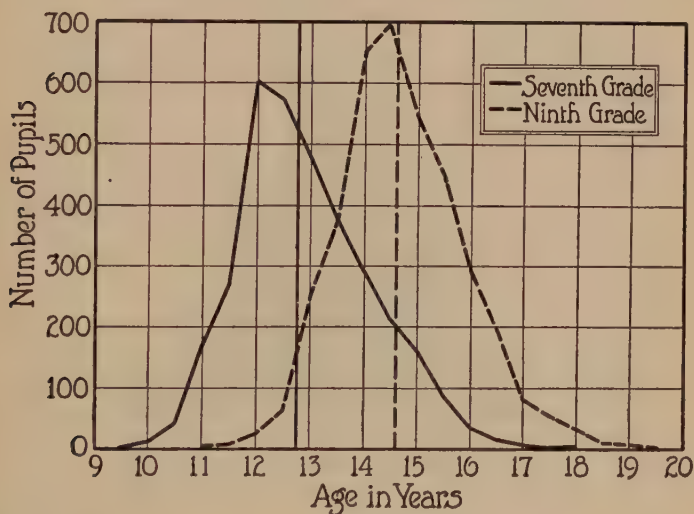


FIG. 14. Distribution by age of 3339 pupils in the seventh grade and 3744 pupils in the ninth grade in school systems of Minnesota. (Drawn from data in Table IX, p. 67)

is at 12 to 13, but many are at age-points outside those ordinarily regarded as normal for this grade. The age-range for the ninth grade is just as wide, extending from 11 to 19.5. The largest numbers of pupils are at the ages normal for this grade, 14 to 15, with other large numbers outside these narrower limits. Variation shrinks but little between the seventh and twelfth grades in the school systems concerned, since the interquartile range (the range of the middle 50 per cent of

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pupils when placed in order from the youngest to the oldest) is 1.69 years in the seventh grade and 1.37 in the last high-school year — a reduction of approximately a third of a year.

Variation in physical traits. The variation in age just illustrated leads one to anticipate wide variation in physical traits among children of secondary-school age. Moreover,

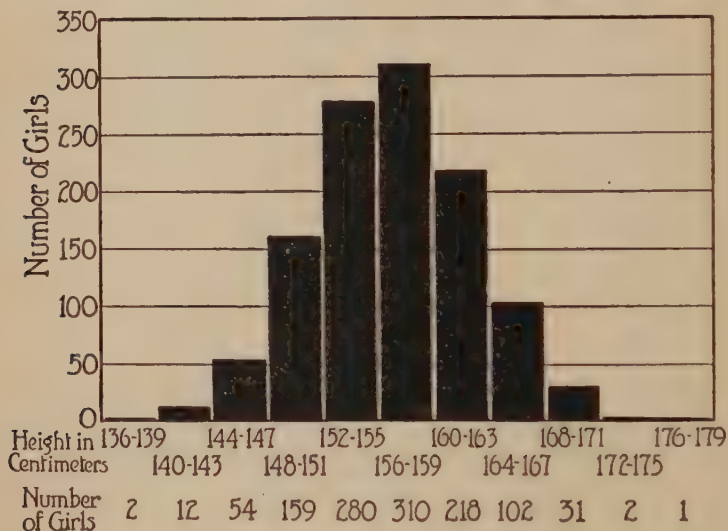


FIG. 15. Distribution by height in centimeters of 1171 sixteen-year-old girls. (After Burk) (See Reference (11) on page 97 of this book)

this variation could be foreseen from the sex differences in physique dealt with in the foregoing chapter, together with the illustration given there of the differing rates of physical growth and the differing periods of arrival of physical maturity. Since these differences are so obvious, the only additional illustrative data to be referred to here are those presented by Burk pertaining to the distribution of statures in a large number of girls (see Fig. 15). The range from

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shortest to tallest in this group was about forty centimeters, or sixteen inches. The distribution shows also its conformity to the curve of normal probability generally known to apply to distribution by height where large numbers are concerned.

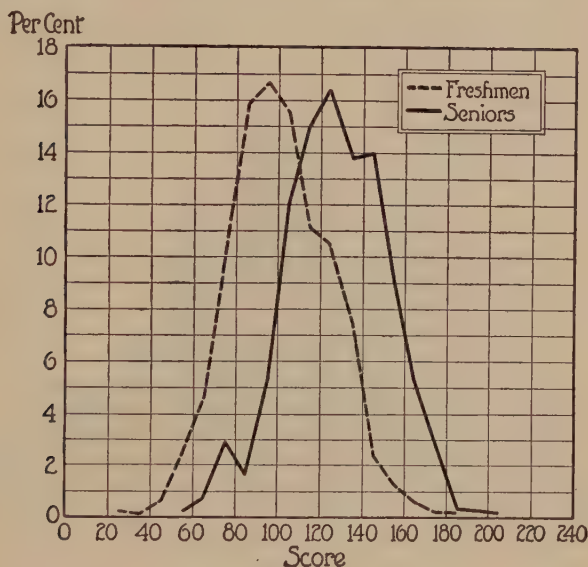


FIG. 16. Percentage distribution of scores on army alpha test of 1257 freshmen and 625 senior boys and girls in the high schools of Madison, Rockford, and Sioux City. (Adapted from data presented by I. N. Madsen and R. H. Sylvester (18))

Variation in general intelligence. Variation in this respect will be exemplified by reference to some of the results of the application of the army alpha test to pupils in high schools in three cities of the Middle West as reported by Madsen and Sylvester.¹ The distributions shown (Fig. 16) are for pupils in the ninth and twelfth grades. The range here again is extremely wide, extending over approximately 150 points,

¹ Madsen and Sylvester (18), p. 408, Table I.

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about three fourths of the full range of scores on the test. The distribution for high-school seniors is somewhat higher than that for freshmen; but some of the scores attained by freshmen are almost as high as the highest for seniors, and the scores for a few seniors reach down within 25 or 30 points of the lowest obtained by these high-school freshmen.

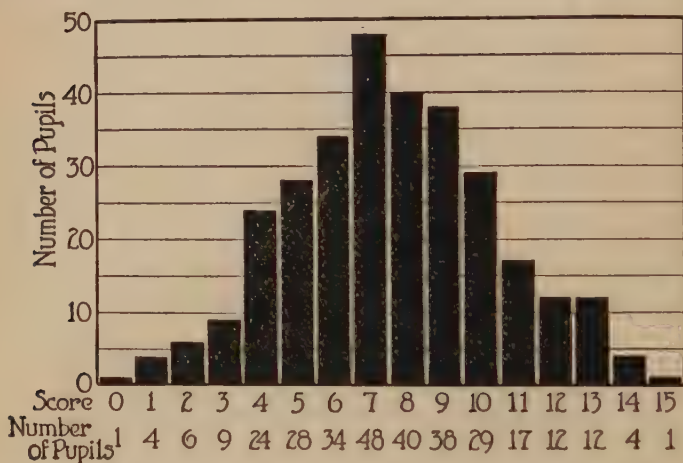


FIG. 17. Distribution by scores in English composition of 307 high-school juniors. (From Table XI in Report of a Survey of the School System of St. Paul, Minnesota, 1917, pp. 449-452)

The distributions of high-school freshmen and seniors just presented may be seen to conform roughly to the bell-shaped curve, showing these measurements of intelligence to pile up in a way similar to that just illustrated for the heights of large numbers of sixteen-year-old girls. This degree of conformity to the normal curve has been investigated for the ninth grade by Thorndike and Bregman, who, using the results of a number of tests of intelligence, note "that in general the larger the sample, the freer the curve is from valleys

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and humps and the less it is skewed,"¹ and that they are "led to the conclusion that intellect in the ninth grade, if measured in truly equal units, is distributed approximately in a surface of frequency bounded by [the theoretical normal curve]. We shall, therefore, approximate closely the truth

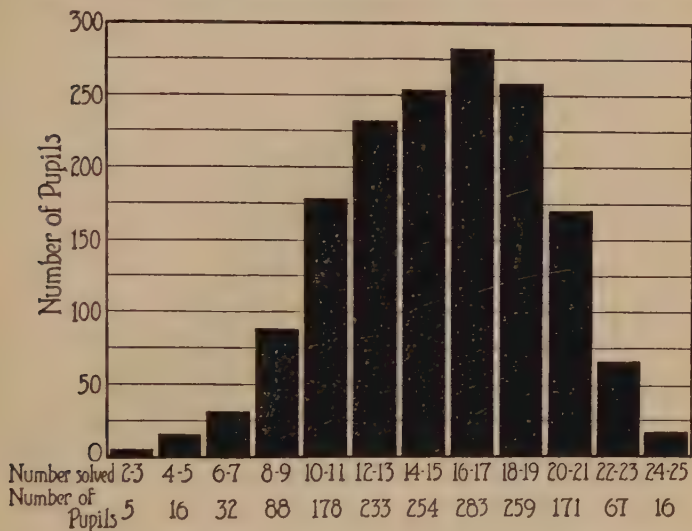


FIG. 18. Distribution of 1602 pupils by the number of equation and formula exercises solved after nine months of study of algebra. (Adapted from Table VI in Henry G. Hotz's "First Year Algebra Scales," Teachers College Contributions to Education No. 90 (1918), p. 43)

by using this hypothesis in scaling the difficulty of intellectual tasks for a ninth-grade population."²

Variation in achievement. A large number of studies of pupils in secondary-school grades have purported to disclose the abilities in school subjects. There have been investigations of the distribution of marks given to pupils and, more

¹ Edward L. Thorndike and E. O. Bregman (23), p. 273.

² Thorndike and Bregman (23), p. 278.

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recently, reports of the results of giving objective tests in a variety of subjects such as are normally taken by pupils in the grades concerned. Distributions of large numbers of marks have shown ranges from failure to the highest marks assigned. However, although typically conforming to some extent to the normal curve and although differing somewhat from subject to subject, they show a tendency to skewing

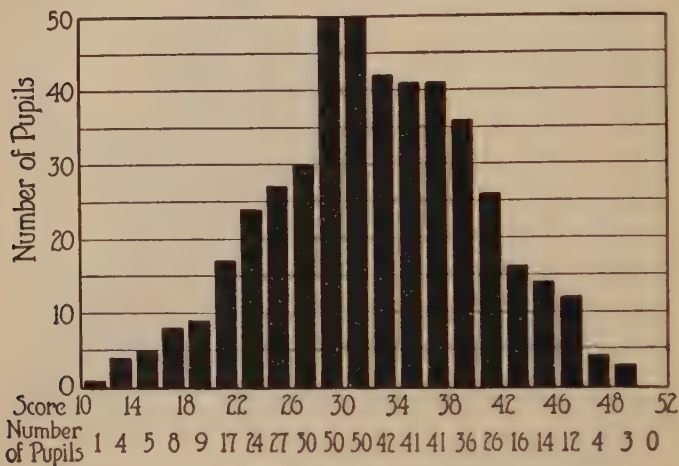


FIG. 19. Distribution of scores of 460 eighth-grade pupils in history (information scales A and B combined). (Adapted from Table XVIII in Marvin J. Van Wagenen's "Historical Information and Judgment in Pupils of Elementary Schools," Teachers College Contributions to Education No. 101 (1919), p. 22)

which, on a five-point basis providing for the marks A (highest), B, C, D, and F (failure), assigns a larger proportion of high than low marks.

Only three illustrative distributions of the results of achievement testing are presented (Figs. 17-19), drawn from the fields of English composition, algebra, and history. The first has been borrowed from that portion of the report of the

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survey of the St. Paul, Minnesota, schools showing the scores obtained in compositions written by high-school juniors; the second is the distribution of ninth-grade pupils by the number of equation and formula exercises solved, as reported by Hotz; the third records the scores of eighth-grade pupils on history-information scales devised by Van Wagenen. Each of the distributions approximates the normal curve, now rather commonly assumed for mental traits of human beings. However, they do so more closely than do many distributions in these and other fields, some of which, for a variety of possible causes, have little semblance to the theoretical bell-shaped curve. Among such causes may be the nature of the test, the number of pupils tested or the degree of selection represented in them, and the nature and amount of instruction given in the field tested.

Variation in tastes and interests. The materials in the last phase of variation to be illustrated are along the lines of (1) subject preferences and (2) occupational choices. Downey has recently made available the percentages of pupils in a number of high schools who indicated preferences for certain subjects and subject groups. First choices were reported for the following subjects in the percentages indicated:

SUBJECT	PER CENT	SUBJECT	PER CENT
English	26	Spanish	11
History	18	Mathematics	23
Latin	22	Science	22
French	16	Commercial subjects . .	20
German	13	Drawing	23

In the balloting the pupils were asked to express their degrees of preference. The figure reported after each subject is the percentage of all choices indicated for each subject (that is, first choice, second choice, third choice, etc.) which are first choices. All subjects may be seen to have received considerable proportions of first choices, the percentages ranging from

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11 to 26.¹ Thus, in view of the variety of content represented, there is wide variation in subject tastes and interests of high-school pupils.

The occupational choices reported on are those of a large number of pupils in Grade IXA of the Minneapolis schools. The 74 occupations listed in Table XIII are those given as choices by two or more pupils. They do not include 57 reported as choices once only, which, with those listed, make a total of 131 different occupations comprehended by these choices. Among the 1605 children were 109 who indicated no occupational preferences; these are not referred to in the table.

The influence of sex as a factor in these preferences may be seen in the fact that of the 74 occupations here listed 42 are found to have been indicated by one sex only — 30 by boys and 12 by girls. About 20 are very predominantly the choice of either boys or girls, giving a total of fully four fifths of the occupations represented with a pronounced sex bias influential in making the choice. Since the range of occupational life for women is traditionally narrower than for men, the variation among boys is greater than for girls.

There is no intent to allege that such an indication of occupational choices by youth at this stage of their development and training can be looked on as a final one either in regard to the individual or to the group representation, nor that the secondary schools, or the secondary schools and higher institutions combined, must afford specific training for all occupations represented in such an array. It is urged only that wide variation in occupational interest, like variation in the other respects illustrated, requires emphatic recognition on the part of those responsible for the secondary schools, a recognition which has thus far in the development of secondary education not been sufficiently accorded.

¹ (21), pp. 521-522.

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TABLE XIII. OCCUPATIONS FOUND TWICE OR OFTENER IN THE CHOICES INDICATED BY 1605 PUPILS IN GRADE IX A ¹

OCCUPATION	NUMBER		TOTAL	OCCUPATION	NUMBER		TOTAL
	Boys	Girls			Boys	Girls	
Teacher	6	221	227	Author	2	6	8
Stenographer	2	195	197	Dentist	7	1	8
Electrical engineer	72	—	72	Interior decorator	1	6	7
Nurse	—	66	66	Milliner	—	7	7
Civil engineer	49	—	49	Railroad engineer	7	—	7
Lawyer	41	8	49	Social worker	—	7	7
Secretary	1	48	49	Cabinetmaker	6	—	6
Musician	11	29	40	Real-estate agent	6	—	6
Physician	33	6	39	Sales person	3	3	6
Music teacher	1	34	35	Athletic coach	4	1	5
Bookkeeper	17	13	30	Mining engineer	5	—	5
Artist	7	21	28	Surveyor	5	—	5
Draftsman	27	—	27	Aëronaut	4	—	4
Electrician	27	—	27	Business worker	2	2	4
Architect	22	4	26	Commercial salesman	4	—	4
Office employee	12	13	25	Contractor	4	—	4
Salesman	18	6	24	Machinist	4	—	4
Engineer	20	—	20	Accountant	1	2	3
Banker	16	2	18	Baseball player	3	—	3
Dressmaker	—	18	18	Carpenter	3	—	3
Chemist	15	2	17	Confectioner	2	1	3
Druggist	15	2	17	Manufacturer	3	—	3
Mechanic	17	—	17	Reporter	1	2	3
Mechanical engineer	17	—	17	Sheet-metal worker	3	—	3
Beauty culturist	—	16	16	Telegrapher	—	3	3
Printer	16	—	16	Advertising specialist	1	1	2
Forester	14	1	15	Auditor	2	—	2
Pharmacist	12	3	15	Comptometer operator	—	2	2
Journalist	6	8	14	Detective	—	2	2
Radio expert	13	1	14	Garage worker	2	—	2
Actor	4	7	11	Gardener	2	—	2
Farmer	9	2	11	Mail clerk	2	—	2
Merchant	10	1	11	Missionary	—	2	2
Cartoonist	10	—	10	Policeman	2	—	2
Automobile mechanic	9	—	9	Show-card writer	2	—	2
Designer	—	9	9	Sign painter	2	—	2
Librarian	—	9	9	Student	—	2	2

¹ Adaptation of Table CXXXIV in J. Orin Powers's "Comparative Study of Instructional Outcomes in Academic Subjects in Junior and Non-Junior High Schools of Minneapolis, 1925," a doctor's thesis on file in the University of Minnesota Library.

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II. THE FACTORS OF ELIMINATION

The incidence of elimination. Attention has already been directed to the fact that although the influx of youth into the upper and high-school grades of the system had doubtless added to the degree of diversification in the pupils enrolled (see Chapter I), not "all the children of all the people" are yet in attendance in these grades. This decreasing proportion of the children of secondary-school age from grade to grade is usually referred to as elimination. After illustration of the extent and incidence of this elimination, an attempt will be made to discover the nature of the selection operative, that is, to ascertain the *factors of elimination* from school.

Some impression of the general extent and incidence of elimination is given in the accompanying figure (Fig. 20), which has been borrowed from data assembled by the United States Bureau of Education. While the figure is being scrutinized, it is well to bear in mind that the data represented pertain to schools of all kinds — urban, rural, etc. — in all sections of the country, and that the variations in the extent of elimination from grade to grade entering into this composite computation must be wide indeed. As the figure stands it shows rapid elimination from the fifth grade up as far as the college years. Elimination runs through many school years; but it is, after all, chiefly a problem of the secondary school if this school is conceived of as extending from the seventh grade into the freshman and sophomore years of the college. This impression is somewhat exaggerated, however, by a large amount of retardation which keeps many children in the lower grades of the system. This, with the lack of compulsory-education laws or negligence in enforcing them, accounts for the rather marked downward steps in the proportion of pupils enrolled in the fifth, sixth, seventh, and eighth grades. The largest proportionate elimination takes

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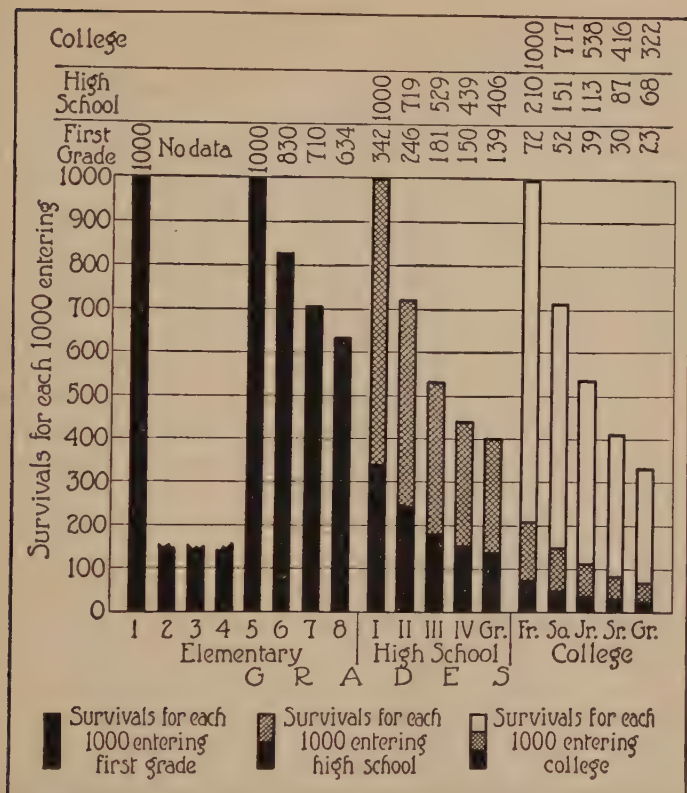


FIG. 20. Number of pupils surviving to each grade of the elementary school, high school, and college for each thousand entering the elementary school (estimated). (From Fig. 11 of "Statistics of Universities, Colleges, and Professional Schools, 1917-1918," *United States Bureau of Education Bulletin No. 34*, 1920)

place between the eighth grade and the first year of the conventional high school. It is still large between the first and second high-school years, but tapers off rapidly from this point upward, since the great bulk of all pupils have by this time been eliminated. Although this is not yet the place to

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discuss the factors of elimination at length, it is important to state that for the country as a whole two influences must account for the accentuation of the elimination between the eighth and ninth grades; namely, (1) the lack in many sections (especially rural communities) of high-school opportunities and (2) the typical termination of the period of compulsory education with the completion of the work of the traditional elementary school.

Since the extent and incidence of elimination vary from one school situation to another, it will help toward a better understanding of the problem to illustrate at least a few of the types of situation to be met with in any large number of systems. This is done by presenting certain percentages computed from tables of enrollments for Philadelphia in 1919, for Cleveland in 1923-1924, and for certain smaller school systems in Minnesota in 1923-1924. Two sets of percentages have been computed (see Table XIV) for the total enrollments in grades beginning with the sixth in each of these situations. The first of these are the percentages which the enrollment in each grade above the sixth are of this enrollment in the sixth. For example, in Philadelphia in October, 1919, the enrollment in the seventh grade was 74.6 per cent of the enrollment in the sixth grade, the enrollment in the eighth grade was 56.1 per cent of that in the sixth grade, and so on. The second set of percentages reveals the proportion of the enrollment in each grade represented by the difference between the enrollment in that grade and the next higher grade. For example, for Philadelphia the decrease by the opening of the seventh grade is 25.4 per cent of the enrollment in the sixth grade. Again, the decrease between the seventh and eighth grades is the difference between 74.6 per cent and 56.1 per cent, or 18.5 per cent. This is, however, 24.8 per cent of those remaining in the seventh grade. The figures in the columns headed "Per Cent Eliminated" have all been computed on this basis.

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TABLE XIV. (1) PERCENTAGES WHICH ENROLLMENTS IN EACH GRADE ARE OF ENROLLMENTS IN THE SIXTH GRADE AND (2) PERCENTAGES WHICH THOSE ELIMINATED FROM EACH GRADE ARE OF THOSE ENROLLED IN THAT GRADE FOR PHILADELPHIA IN 1919,¹ FOR CLEVELAND IN 1923-1924,² AND FOR CERTAIN SCHOOL SYSTEMS IN MINNESOTA IN 1923-1924³

GRADE	PHILADELPHIA, 1919		CLEVELAND, 1923-1924		CERTAIN MINNESOTA SYSTEMS, 1923-1924	
	Per Cent Retained	Per Cent Eliminated	Per Cent Retained	Per Cent Eliminated	Per Cent Retained	Per Cent Eliminated
6	100.0 } 74.6 } 56.1 } 36.5 } 20.1 } 13.3 } 9.4 }	25.4 24.8 34.9 44.9 33.8 29.3	100.0 } 100.0 } 86.0 } 75.8 } 50.5 } 30.4 } 28.2 }	0.0 14.0 11.9 33.4 39.8 7.2	100.0 } 100.7 } 92.5 } 112.9 } 94.2 } 74.4 } 64.3 }	0.7 ⁴ 8.1 22.1 ⁴ 16.6 21.0 13.4

Some notion of the relative extent of elimination in the three situations may be gained by a comparison of the figures in the three columns of Table XIV headed "Per Cent Retained." It may be seen that the percentages are reduced from grade to grade more rapidly for Philadelphia than for Cleveland and more rapidly for Cleveland than for the smaller systems in Minnesota. The differences between the two cities are probably explained by at least three factors: the later date to which the Cleveland figures apply (since higher levels of education have been rapidly popularized in

¹ Computed from Table I of the Report of the Survey of the Public Schools of Philadelphia, Book II, p. 182.

² Computed from data made available by the Bureau of Research, Cleveland Public Schools.

³ Computed from data in Table IX, p. 67.

⁴ These are percentages of gain in enrollment rather than of loss.

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most communities in recent years); junior high-school reorganization in Cleveland, which by the year 1923-1924 had affected all but a relatively small proportion of the pupils concerned; and the longer period of compulsory education in Ohio in 1923-1924 than in Pennsylvania in 1919. In the Minnesota systems retention seems to be in even larger proportions than in Cleveland. This is in part a correct interpretation, since, among other reasons, the cities represented are much smaller: retention has been found to be better in small than in large cities, for causes discernible in the materials to follow. The much larger retention is more apparent than real, however, because nonresident pupils have not been subtracted from the numbers enrolled. These mount to much larger proportions of the total enrollment in the smaller than in the larger systems. The numbers of such nonresidents are especially notable in upper and high-school grades.

The columns headed "Per Cent Eliminated" are also deserving of special consideration. The largest percentage of the enrollment of any grade dropping out before the next grade is to be found between the ninth and tenth grades in Philadelphia, where it is 44.9. This finding is not in harmony with the customary notion of the point of incidence of the largest proportionate elimination, which would place it between the eighth and ninth grades. It is, however, quite appropriate that pupil mortality should be greatest *after* the pupils have transferred to the earliest years of an institution (the four-year high school) which is very different from that to which they have been accustomed (the eighth-year elementary school). Moreover, it is typical of many systems operating on the 8-4 plan. An accompanying characteristic is that the second largest proportionate elimination is found at the expected point, that is, between the eighth and ninth grades. The Cleveland proportions differ most in the fact that through junior high-school reorganization and other

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influences elimination is delayed, being largest after the termination of the junior high-school period. The extent of elimination in the Minnesota situation is, as has already been explained, hidden by the recruitment of nonresident pupils.

Inasmuch as such large numbers of our school systems continue to be of the 8-4 type, it is appropriate to give some special consideration to elimination taking place from the four-year high school. Bonner has shown that the enrollment in the high schools of the country is distributed to the four high-school grades as follows: ninth grade, 39.8 per cent; tenth grade, 26.9 per cent; eleventh grade, 18.8 per cent; twelfth grade, 14.5 per cent.¹ With certain qualifications the shrinkage from 39.8 per cent to 26.9 per cent means an elimination between the first and second years equivalent to 32.4 per cent of the first-year enrollment. Between the second and third and the third and fourth years, respectively, the percentages eliminated were 30.2 and 22.9, showing a decline in elimination with advancement in school. The qualifications referred to are the extent of retardation that must be represented and the fact that a small proportion of the high schools represented are one-year, two-year, and three-year institutions.

All the data so far presented purporting to show the extent and incidence of elimination have failed to trace individual pupils through their periods of attendance in school, which is the only fully adequate method to be used in this connection. This was done by Van Denburg for high schools of New York City,² but the data pertain to a school situation now so far removed as to raise the question of the merit of quoting his findings, especially as high schools in the interim have experienced a much increased holding power. Hunt,

¹ H. R. Bonner, *Statistics of Public High Schools, 1917-1918*, *United States Bureau of Education Bulletin No. 19* (1920), p. 42.

² Joseph K. Van Denburg (24), pp. 88-91.

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however (see Table XV and Fig. 21), traced the high-school careers of 1001 pupils in certain high schools of Minnesota during a more recent period, 512 of whom were eliminated before graduation. The largest proportion dropped out before the opening of the second year, with marked additional eliminations during the second year and before the opening of the third year. The proportionate elimination after this point was relatively small. These conclusions are roughly in accordance with those already drawn for the years concerned. The percentage of total elimination is considerably smaller than for most studies of the sort that have been made.

TABLE XV. CUMULATIVE PERCENTAGES BY SEMESTERS OF ALL HIGH-SCHOOL ENTRANTS ELIMINATED BEFORE GRADUATION ¹

GROUP	NUMBER OF SEMESTERS									
	1	2	3	4	5	6	7	8	9	10
Boys .	17.2	41.3	45.2	52.3	54.1	58.9	58.9	60.1	60.1	60.1
Girls .	9.6	24.1	27.6	34.7	36.1	42.6	43.0	44.1	44.1	44.2
Both .	12.9	31.6	35.3	42.4	44.0	49.8	50.0	51.1	51.1	51.1

The possible factors of elimination. A host of influences have from time to time been posited as bringing about the elimination from school which has been found to take place. To examine into the validity of all is out of the question. Therefore only the following will be given any extended treatment: *intelligence, age, sex, economic status, nationality of father, cultural (including educational) traditions, and success in school work.*

Intelligence and elimination. Treatment of the question of the relationship of intelligence to length of stay in school may well be opened by a comparison of army alpha test scores of

¹ Heber U. Hunt, A Study of Elimination from Certain High Schools in Minnesota, p. 69. Master's thesis on file in the Graduate School of the University of Minnesota, 1923.

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high-school freshmen, high-school seniors, and college and university freshmen with those of the literate white men drafted in the army. The percentage distributions of scores for the four groups are shown in the accompanying chart (Fig. 22). Only small proportions of each of the scholastic groups are to be found below the median of the white draft,

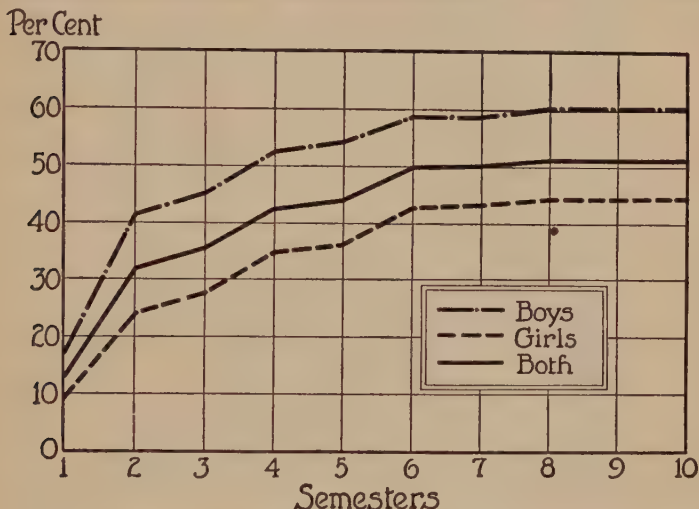


FIG. 21. Cumulative percentages by semesters of all high-school entrants eliminated before graduation. (From Table XV)

revealing — even after all necessary concessions have been made from the assumption that the army alpha test measures native mentality — a very marked tendency to selection by intelligence. The advance of the distribution for high-school seniors above that for high-school freshmen, and the advance of the distribution for college and university freshmen above that for high-school seniors, is further evidence that intellectual selection continues with progress upward in the school system — that the intellectually less capable are in larger proportion eliminated than the more capable.

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Another means of comparison of the groups represented in this figure is their percentage distribution to the literal ratings which were applied in making use of the test data in the army. These were as shown in the three left-hand columns

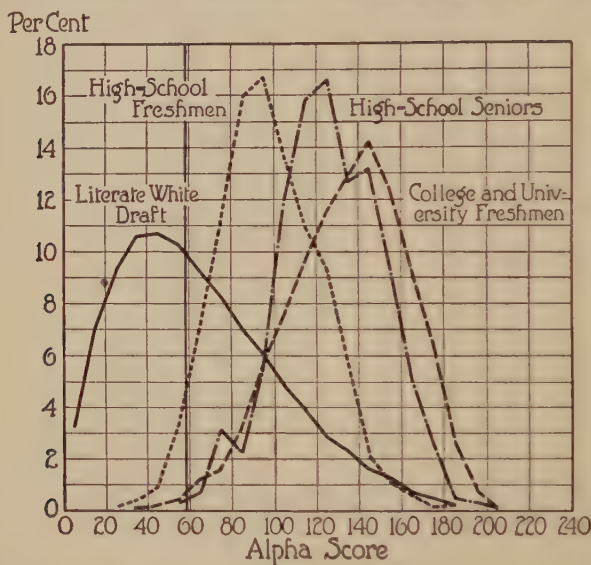


FIG. 22. Percentage distributions of scores of the army alpha test of the literate white army draft,¹ 1721 high-school freshmen,² 2766 high-school seniors,³ and 4479 freshmen in colleges and universities.⁴ (The heavy vertical line locates the median of the literate white army draft)

of Table XVI. The resulting percentages disclose an unmistakable selection by intelligence. This tendency is made more apparent by Fig. 23, which shows mounting proportions of high ratings in upper school levels.

¹ Memoirs of the National Academy of Sciences (1921), Vol. XV, p. 764.

² Margaret V. Cobb (3), p. 454.

³ Ibid. p. 457.

⁴ Koos, The Junior College, Research Publications of the University of Minnesota, Education Series No. 5, p. 95.

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TABLE XVI. PERCENTAGE DISTRIBUTION BY RATINGS ON ARMY ALPHA TEST OF THE LITERATE WHITE DRAFT, HIGH-SCHOOL FRESHMEN, HIGH-SCHOOL SENIORS, AND COLLEGE AND UNIVERSITY FRESHMEN

RATING	SCORE RANGE	INTERPRETATION	PER CENT			
			Literate White Draft	High-School Freshmen	High-School Seniors	College and University Freshmen
A	135-212	Very superior	5.2	6.4	37.2	52.2
B	105-134	Superior	10.3	30.6	45.6	32.1
C +	75-104	High average	19.5	45.6	15.8	13.3
C	45-74	Average	29.4	16.9	1.4	2.3
C -	25-44	Low average	20.8	0.5	—	0.2
D	15-24	Inferior	8.4	—	—	—
D -	0-14	Very inferior	6.2	—	—	—

Before leaving this comparison, comment should be made on three problems affecting the degree of mental selection represented in the materials used: (1) The first is that the army alpha test was devised for use with men and has been found to be unfair to girls and women. Since the latter tend to score below boys and men, and since both sexes are represented in the scholastic distributions, the degree of educational selection may be understood to be somewhat higher than would otherwise be inferred. (2) The second bears upon the extent to which the literate white draft represents the total male population. On this question Miss Cobb says:¹

Whether the army was typical in intelligence of the total population of the United States is a question still under discussion. At both ends of the scale are groups in the general population which did not get into the army — at one end the feeble-minded, at the other, intelligent men exempted because of the importance of the work they were carrying on in civil life. Terman believes that the recruits were on the whole lower than the whole population; Doll and Goddard consider the army a representative group. At any rate it is the best sample we have or are likely to have for some time of the intelligence of this country. . . .

¹ Cobb (3), p. 453.

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(3) The third problem has to do with what accounts for the difference in scores between high-school freshmen and high-school seniors, for example. Is it owing solely to differences in native intelligence, or to factors such as the mental growth of children and additions to information and skill in the intervening years, or to both kinds of influence? Miss Cobb, who

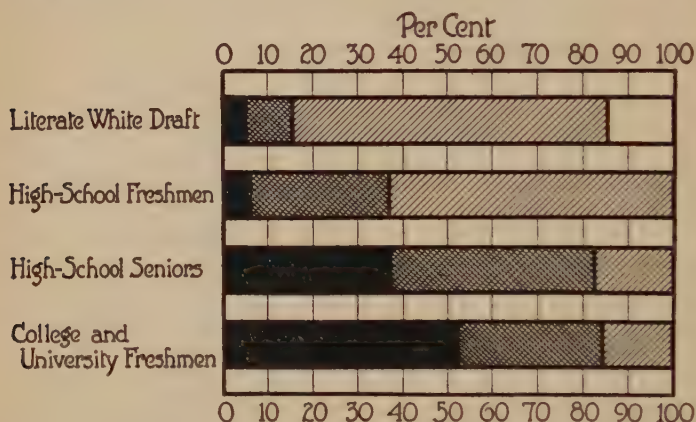


FIG. 23. Percentages of the literate white army draft, high-school freshmen, high-school seniors, and college and university freshmen rating A, B, C +, C, C -, D, and D - on the army alpha test. (Black, A; cross-hatching, B; single hatching, C +, C, and C -; in outline, D and D -)

has just been quoted, made a careful inquiry into this problem, comparing the increments from one year to the next throughout the high-school period for high-school pupils and for recruits who reported that their last attendance was in the first, second, third, or fourth high-school year. She found the difference larger for high-school pupils than for recruits, the average differences for the two groups from freshmen to senior years being approximately 30 and 17 points, respectively, on the alpha test. The difference for recruits she would ascribe "to the effect of educational selection, and the more

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permanent effects of instruction." The surplus of difference in favor of high-school pupils is explained by "the immediate effect of growth and instruction."¹

... The indication is that mental maturity — mere mental growth, independent of environment — together with the temporary effects of instruction, is responsible for a good half of the change of score from freshman to sophomore year; from junior to senior year it accounts for about one fifth of the change. Educational selection, and the permanent effects of instruction, seem to account for nearly half of the increase from the first to the second year, and almost the whole of the yearly increase later on."

We may conclude that although the differences shown are far from being explained by native intelligence, selection by intelligence is an eliminating factor of great importance.

Selection by intelligence may be shown also by a comparison of mental-test scores of regular-school children and continuation-school children, as has been done by Hopkins. Continuation-school children are for the most part those who have left the classes in the regular school and would ordinarily not be in attendance in any school if the compulsory-education law did not bring them in for part-time instruction. The distributions of scores on the same test for both fourteen-year-olds and fifteen-year-olds are much higher for those in the regular school than for the other group. This is true also for the median scores, which, for the fourteen-year-olds, are, respectively, 124.71 and 89.64 and for the fifteen-year-olds 129.32 and 92.87.

Operation of the factor of intellectual selection is shown when measures of intelligence other than raw test scores are used. This was demonstrated by Terman, who found that the proportion of first-year high-school pupils with mental ages lower than fourteen and with I. Q.'s lower than 90 are small indeed.²

¹ Cobb (3), pp. 462-463.

² Terman (22), pp. 77-81.

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Age and elimination. A significant degree of relationship can be shown between chronological age and length of stay in school. Van Denburg showed that the median "expectancies" (lengths) of stay of pupils thirteen, fourteen, fifteen, and sixteen years of age at entrance to high schools in New York City were, respectively, 3.8, 3.0, 2.2, and 1.9 semesters.

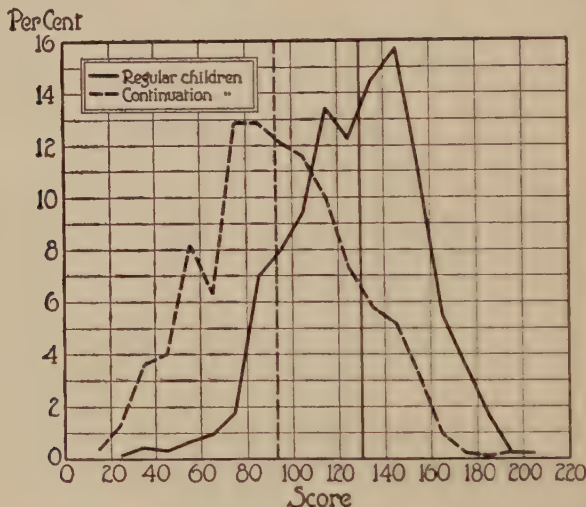


FIG. 24. Percentage distributions of intelligence-test scores of 971 regular-school and 890 continuation-school children fifteen years old. (From L. Thomas Hopkins (13), p. 59)

The median stay for thirteen-year-olds was just twice as long as that for those three years older at the time of entering.¹ Hunt's comparison of graduates and nongraduates in certain high schools of Minnesota found median ages, respectively, of 14.5 and 15.1 years.² The percentages of the two groups who were under age, of normal age, and over age at

¹ Van Denburg (24), p. 102.

² Hunt, *A Study of Elimination from Certain High Schools in Minnesota*, pp. 34, 77.

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the time of entrance are so informative with regard to the relationship under consideration that they are reproduced here to facilitate comparison :¹

	UNDER AGE	NORMAL AGE	OVER AGE
Graduates	20.1	62.1	17.8
Nongraduates	10.3	48.9	40.8

The proportion of the graduating group who were under age at entrance is twice that of the nongraduating group, and the proportion of the nongraduating group who were over age is more than twice that of the graduating group. OBrien found the following percentages of pupils graduating for each age-entering group: twelve years, 79.1; thirteen years, 56.6; fourteen years, 38.8; fifteen years, 29.9; sixteen years, 20.0; seventeen years, 13.4; eighteen years, 9.4.² The percentages for younger ages were much larger than for the older entrants.

Maturer reflection over the relationship under scrutiny provokes the suspicion that age may not always be the chief originating cause of elimination, even where the pupils in question may be considerably over age for the grades in which they are enrolled. Unquestionably many do leave

TABLE XVII. MEDIAN SCORES IN THE ARMY MENTAL TEST BY CHRONOLOGICAL AGE AND CLASSES, IN THE MADISON, ROCKFORD, AND SIOUX CITY HIGH SCHOOLS³

CLASS IN HIGH SCHOOL	CHRONOLOGICAL AGE								
	12	13	14	15	16	17	18	19	20
Freshmen	125.0	109.7	103.3	97.2	90.3	87.0	50.0	—	—
Sophomores	—	125.0	121.9	114.4	113.3	103.7	105.0	95.0	—
Juniors	—	—	130.0	128.7	127.3	121.5	114.1	100.0	—
Seniors	—	—	—	145.0	141.4	130.3	125.8	117.8	107.5

¹ Ibid. p. 99.

² F. P. OBrien (19), p. 33.

³ Madsen (17), p. 299, Table I.

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school as soon as the law permits, largely because of sheer maturity, but the underlying influence of an average or less-than-average mentality may appropriately be assumed in a large proportion of cases. This is to be inferred from data such as have been presented by Madsen and Keener. The former made clear (see Table XVII) that in the long run the older the pupil is in a given high-school year, the lower his mental-test score. This was found to be true in all four high-school grades. Keener showed for high-school freshmen only (in Chicago) that the more advanced the pupil's chronological age, the lower the median mental age:¹

Chronological age	11 to 12	12 to 13	13 to 14	14 to 15	15 to 16	16 to 17	17 to 18	18 to 19
Median mental age	16-0	15-2	14-8	14-4	13-8	13-1	12-3	12-4

That deficient native intelligence often underlies age as a factor in elimination, or that at least the two factors often operate in conjunction, may be inferred also from the high negative correlation,—0.74, reported between I. Q. and chronological age for a group of high-school freshmen.²

Sex and elimination. That sex is influential in the length of stay in school, at least in secondary-school grades, may already have been noted by the reader in examining Table XV and Fig. 21, which were introduced to determine the incidence of elimination. The elimination by the end of the tenth semester (fifth year of high-school attendance) for all pupils was 51.1, somewhat more than half the original entrants. The percentages of the two sexes were widely at variance, that for boys being 60.1 and that for girls 44.2. Boys in these Minnesota high schools are being eliminated in larger proportions than girls. That this is not a local phenomenon is emphasized in data pertaining to high schools

¹ Keener (16), p. 118, Table IV.

² Terman (22), p. 82.

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of the country as a whole, as made available by the Bureau of Education (Fig. 25). Beginning in the first high-school year by being but 45.3 per cent of all students enrolled, the proportion of boys decreases in each year until in the last year they are but 38.8 per cent — less than two fifths — of the

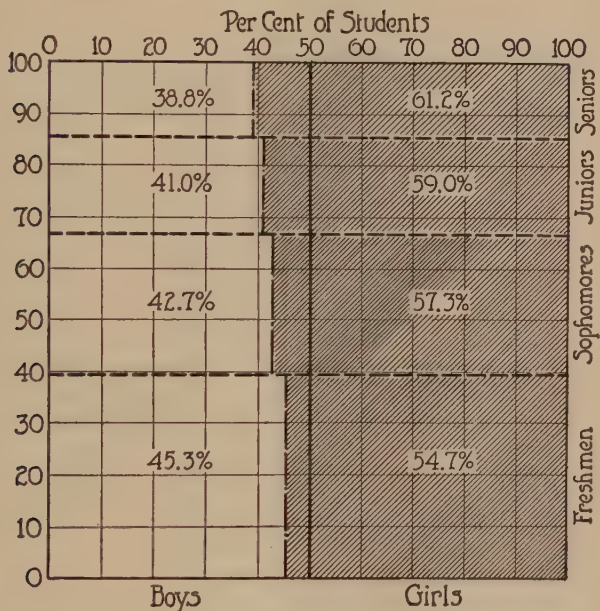


FIG. 25. Percentage distribution of high-school students in the United States as to sex and as to the year of the course in which they are enrolled, 1917-1918. (Fig. 14 in (VI) (3), p. 42)

whole. In view of the well-nigh equivalent proportions of the two sexes in census reports, this is a significantly small proportion of boys.

The critical reader will here again be disposed to suspect the influence of factors underlying sex (or at least operating with it) to bring about the disparity in the percentages.

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Only a minor part of this disparity could be ascribed to differences in mentality at this stage of development. More probably it is attributable in part to the temptation to accept opportunities for early employment more frequently open to boys than to girls, combined sometimes with economic necessity. The greater success of girls in scholarship, which in turn affects the disposition to stay in school, must also be active in causing the difference noted.

Economic status and elimination. Two investigations made in recent years have established the influence of the economic status of the family on the length of stay in school. The first of these is by Holley, who, among other data, computed coefficients of correlation between certain measures of the economic well-being of the family and the years of stay in school of sons and daughters. The families concerned lived in certain cities of moderate size in Illinois. The particular economic measures were the rental value of the home, the personal-property assessment, the real-estate assessment, and the number of rooms per individual in the family. The coefficients of correlation obtained were as follows:¹

MEASURE OF ECONOMIC STATUS OF FAMILY	YEARS OF SCHOOLING OF SONS	YEARS OF SCHOOLING OF DAUGHTERS
Rental value of home	0.63	0.64
Personal-property assessment . .	0.47	0.52
Real-estate assessment	0.63	0.58
Number of rooms per individual .	0.50	0.48

These coefficients are all large enough to warrant the conclusion that the economic status of the family is significantly related to the length of stay in school.

The second, a study by Counts, is one of the most valuable investigations relating to the secondary-school pupil which have been reported in print in recent years. A major feature

¹ Charles E. Holley (12), p. 97. Because of their relative insignificance the figures for probable error have been omitted from the data cited.

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of the study was the computation of the frequency with which certain groups of occupations recur among the fathers of the large numbers of pupils enrolled in the urban high schools represented. These frequencies were then transmuted

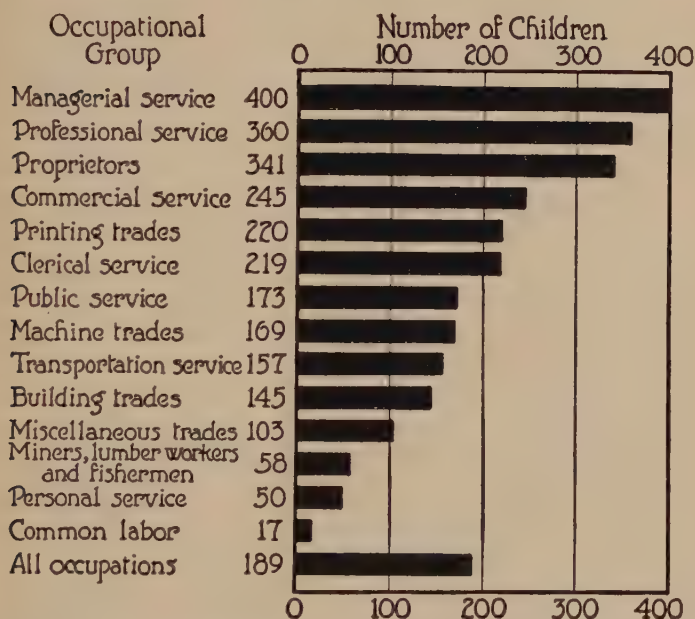


FIG. 26. The number of children in the high schools of four cities (Bridgeport, Mt. Vernon, St. Louis, Seattle) from each occupational group for every thousand males over forty-five years of age engaged in that occupation according to the Fourteenth Federal Census (1910). Data from 16,283 high-school students. (From George S. Counts (4), p. 33, Fig. 2)

into the number from each occupational group for every thousand males over forty-five years of age engaged in that occupation in the cities of location of these high schools. Since the figures resulting from these computations show a much larger proportionate representation of those on the

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higher economic levels than of those on the lower levels, they constitute a most disconcerting challenge to our traditional belief that economic democratization has been fully achieved in the American secondary school. Notwithstanding the fact that the order of the occupations listed in Fig. 26 does not compose anything approaching a perfect scale of incomes, the general trend is unmistakable. Moreover, the economic selection shown to apply to the total high-school enrollment irrespective of grade was found also to be operative within the school from one grade to the next higher. For example, the children of fathers in the building trades constitute 16.5 per cent of all pupils in the sixth grade, but by the twelfth grade the proportion is reduced to 0.7 per cent. Again, children of fathers in common labor make up 10.8 per cent of all pupils in the sixth grade, but scarcely a trace of them is to be found in the twelfth grade. On the other hand, the percentage of children of proprietors increases from 13.1 to 29.4 during the same span of grades.

Unquestionably, the lack of cultural (inclusive of educational) traditions, a factor of elimination whose influence is to be scrutinized before concluding the chapter, is knit up with economic status in bringing about much of the exodus from school disclosed in the shorter bars of Fig. 26. Another factor working concomitantly with economic status is the first one canvassed above — intelligence. This is demonstrated, at least in part, by the relationships between intelligence of pupils and the occupational grouping of their fathers as investigated by Haggerty and Nash. These authors show (Fig. 27) that a grouping of pupils in the elementary grades (III–VIII inclusive), as to whether their fathers are in professional, business and clerical, skilled, semi-skilled, or unskilled occupations, or farming, discloses large differences in the median intelligence quotients from group to group. These scores are highest for the children of (1) professional workers, and after this group the order down-

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ward mentally is (2) business and clerical, (3) skilled, (4) semi-skilled, (5) farming, and (6) unskilled. This is probably not far from the order of economic status. This order of

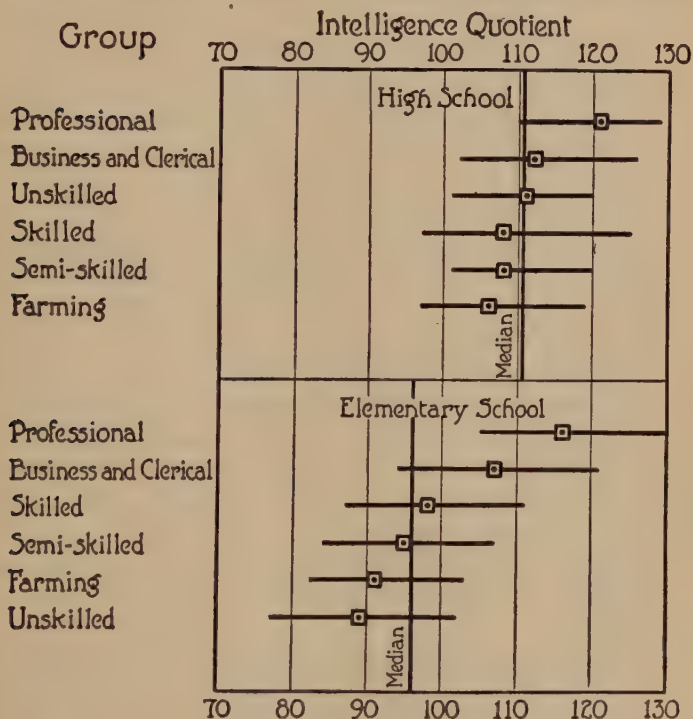


FIG. 27. Medians and ranges of middle fifty per cent of intelligence quotients of elementary-school and high-school pupils grouped by the occupations of their fathers. (From Melvin E. Haggerty and Harry B. Nash (11), p. 568, Fig. 3)

occupational groups is somewhat disturbed by the time pupils reach the high-school grades, but there is enough of it left to afford partial support for the statement that, as factors of elimination, economic status and intelligence operate

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to some extent conjointly. At the same time, there is enough overlapping of the distributions to ward off a sweeping inference.

Membership in ethnic groups and elimination. It is often stated that nationality, or "race," is a significant factor of elimination from school. Some evidence is also at hand to support this statement, although we are far from knowing all we should concerning the details of its operation. Counts made a partial investigation for Bridgeport, showing for each of ten groups (divided as to the country of the father's birth) the number of pupils in the senior high-school year for every hundred in the freshman year. These groups and proportions (which are really percentages) are, in the order of declining magnitude, as follows: Germany, 61.1; British Empire (other than Ireland), 57.6; Russia, 50.9; Ireland, 48.4; United States, 43.7; Scandinavia, 36.6; Austria-Hungary, 26.5; Italy, 16.7; Poland, 15.4; other foreign, 11.1. From these data Counts concludes that "on the whole the people from the north and west of Europe make a better showing than those from the south and east. The single exception to this generalization is the case of Russia, whose large Hebrew contingent is probably responsible for the fact that the people from this section of Europe are found in third place."¹

An older source of data, illuminating in this connection, is the report of the Immigration Commission, which, among other fields of inquiry, found the extent to which children of native and foreign parentage were enrolled in elementary schools and high schools of thirty-seven cities (some of which were Baltimore, Boston, Buffalo, Cleveland, Kansas City, Lynn, Milwaukee, Minneapolis, New York, Philadelphia, and San Francisco). For present purposes the percentage which pupils enrolled in public high schools were of those enrolled in public elementary and high schools was computed

¹ Counts (4), p. 108.

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for each of the most common ethnic groups, with the results shown in Fig. 28. The percentage for all those of native-born white paternity is 9.5. The percentages for those of foreign-born paternity range widely — from 10.6 for Canadian (other than of French extraction) to only 0.5 for Portuguese. Aside from the Canadians, all those above the middle percentage for foreign-born groups (Russian, 4.6) are what are ordinarily termed in immigration circles "north-west Europeans"; and, with the exception of the French Canadians and the Portuguese (the latter properly classifiable with Mediterranean groups), all those below this middle percentage are "southeast Europeans," or the "newer" immigration. This inference accords with that drawn by Counts. Since those of Hebrew parentage were here separated from others, it is possible to note that the percentage for the German Hebrew stands near the top, whereas three other Hebrew groups are located together not far below the median percentage.

Another interesting finding is that although the percentage for negroes (4.3) is somewhat less than half that for native-born whites, it is at the same time almost as large as the percentage for all the foreign-born (4.9). However, most of the cities represented are Northern cities.

As stated, Fig. 28 was prepared from data pertaining to public-school enrollments only and not taking into account enrollments in parochial schools. As is generally known, these groups of foreign-born resort in widely differing proportions to parochial schools. The groups among those listed which do so notably more than others are the Irish, Polish, Germans, and Italians. Since high-school opportunities are not provided under parochial auspices with the same proportionate frequency as is the case among public schools, the parochial-school enrollment is much more predominantly elementary than is the public-school enrollment. This means that for ethnic groups such as those named the percent-

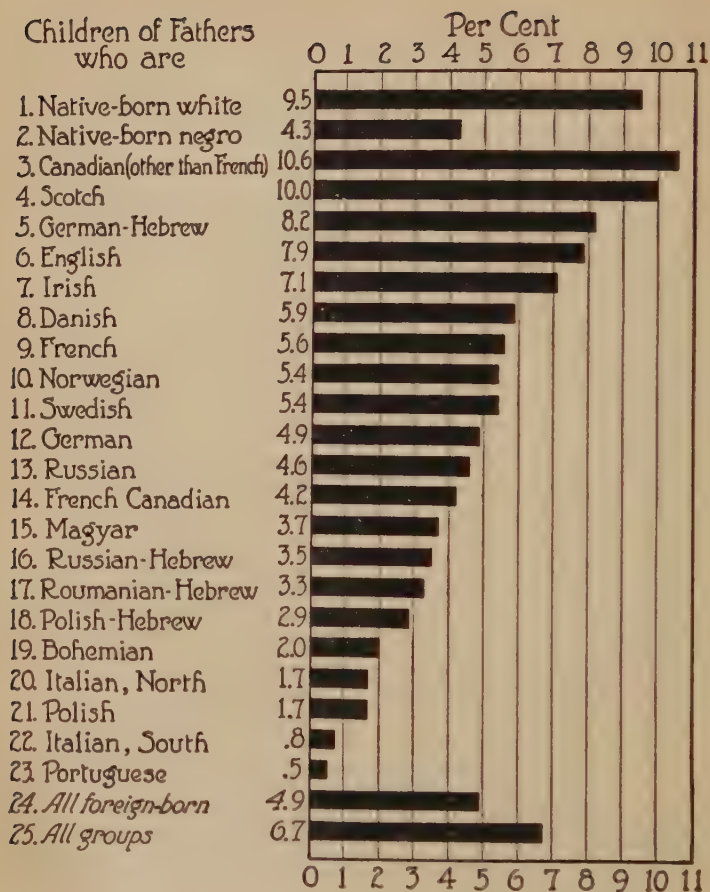


FIG. 28. Percentage which pupils enrolled in public high schools were of those enrolled in public elementary and high schools for native-born and foreign-born groups in certain cities of the United States. (Prepared from tables on pages 24-25 of Reports of the Immigration Commission, Vol. II, 61st Congress, 3d Session, Senate Document No. 747, 1911)

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ages reported are somewhat in excess of what they would be if parochial-school enrollments could be included in the computations. Careful consideration of the data on enrollments in parochial schools has convinced the writer that the group farthest out of place in the rank of percentages on this account are the Irish, although, on account of the form in which the original data are reported, it is impossible to estimate with any assurance just what the extent of displacement is.

The question of whether the differences in extent of elimination for the different ethnic groups are caused by differences among them in native mentality is being answered today more in terms of one's committal to, or denial of, Nordic supremacy than by resort to science. Unfortunately there is no unequivocal answer to the question. Nevertheless some evidence is at hand; for instance, the data and interpretations of Feingold, from which extracts will be made. Speaking of the I. Q.'s of high-school freshmen in Hartford, he says:¹

... We note that the differences among the various racial groups ... in I. Q. diminish from the highest (English and Scotch) to the lowest, Colored, by almost imperceptible differences. It is true that the Colored individuals ... were favored by positive selection. ... Unquestionably a larger proportion of poor material among the Colored boys and girls leaves grammar school to go to work than among the other racial groups. Instead of having racial differences, therefore, we may say that there is slight difference between groups of races and ... we would be justified in making three divisions; placing in the first group the English, American, Jewish, and German; in the second, the Scandinavian, French, and Irish; and in the third, the Polish and Italian. The Colored individuals, of course, would have to constitute a group by themselves. But even here it is difficult to say whether the difference is native or whether it is due to a difference of cultural tradition and educational opportunities. Notwithstanding that the 2353 individuals treated [in this column] are all grammar school graduates and most of them have been brought

¹ Gustave A. Feingold (7), pp. 71-72.

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up in the same city, we nevertheless cannot disregard the fact that most of the Jewish and nearly all of the Polish and Italian children were somewhat handicapped in the modified alpha tests because English is not the spoken language in their homes.

TABLE XVIII. PERCENTAGE COMPOSITION (ACCORDING TO NATIONALITY OF PUPILS' FATHERS) OF FRESHMAN AND JUNIOR HIGH-SCHOOL CLASSES, AND THE MEDIAN I. Q. OF EACH NATIONALITY FOR EACH CLASS¹

NATIONALITY OF FATHER	PER CENT OF CLASS		MEDIAN I. Q.	
	Freshman	Junior	Freshman	Junior
English and Scotch	3.2	2.6	105	109
American	37.9	43.0	103	107
Jewish	22.0	31.3	103	103
German	3.7	3.0	103	105
Danish and Swedish	4.8	4.2	102	101
French	1.5	0.9	98	— ²
Irish	11.7	6.6	98	100
Polish	3.7	1.7	97	101
Italian	8.7	4.4	97	100
Colored	2.5	2.3	95	94

Feingold compares with these data similar data for juniors and seniors, studying the rankings of the races in these three groups as well as the rankings of the same races resulting from the army alpha tests given to army draftees. These comparisons show marked similarity of the rankings. Three of the four conclusions drawn from the study are as follows:³

1. The mental differences among the American-reared descendants of foreign races, viewed among themselves, are so small as to be practically insignificant.

2. The mental difference between the American-reared children of foreign races and children of Anglo-Saxons, whether judged by the freshman or by the junior scores, is equally too small to be significant.

¹ Feingold (7), p. 70, Tables I-II.

² Too small a number of pupils to give a dependable median.

³ Feingold (7), p. 75.

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3. The Jewish children of high-school age, though subject to less positive selection than pupils of the other racial groups, have practically the same mental rank as the American children in their freshman year, and are only a few points lower than they are in their junior year.

While it may be that Feingold has not taken full account of the selection operating for admission to the freshman high-school year which would bring about something like mental comparability of all groups entering, it is probable that he has afforded some basis for the opinion that differences in extent of elimination among the different nationalities are explained less by differences in native mental capacity than by some other differences, such as educational and cultural traditions.

Educational and cultural traditions and elimination. It may be recalled that the factor last mentioned is not the only one during the discussion of which the concomitant influence of cultural (inclusive of educational) traditions has been surmised. This was partly suggested in considering sex and definitely posited in considering economic status as factors. We now turn to some of the more direct evidences of the influence of culture on length of schooling.

Holley, in the study cited on page 130, found the following coefficients of correlation between the length of stay in school of children and certain (albeit imperfect) measures of the cultural background; namely, the years of schooling of parents and the number of books in the home:¹

MEASURE OF CULTURAL BACKGROUND	YEARS OF SCHOOLING OF SONS	YEARS OF SCHOOLING OF DAUGHTERS
Years of schooling of father . . .	0.47	0.56
Years of schooling of mother . . .	0.55	0.60
Years of schooling of both parents .	0.65	0.62
Number of books in home	0.67	0.68

¹ Holley (12), p. 97.

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These coefficients are fully as large as those shown above for economic status and reveal a relationship no less marked.

Inasmuch as these traditions are influential in determining educational plans and ambitions, it is worth while to inquire into the relationship of such plans to the length of stay in high school, as was done by Van Denburg. Two of the questions he put to all high-school entrants were Do you regard a high-school course as necessary for the realization of your plans for the future? and Do you expect to complete the course? The answers dropped into three groups: Yes, Undecided, and No. The median numbers of semesters of attendance of those giving these three answers to the first question were, respectively, 4.3, 2.4, and 1.6; for the second question, 4.9, 1.9, 0.8. The high degree of relationship between ambitions and length of stay is shown also in Van Denburg's study of vocational choice and elimination from high school. The length of stay of those who had selected occupations involving preparation in higher institutions was longer than that of pupils whose plans did not involve it.¹

Moreover, the cultural traditions of peoples influence the differing lengths of stay in school of their boys and girls. Counts computed for different ethnic groups the proportionate number of boys to 100 girls in the Bridgeport High School and found that for pupils with native-born fathers this number was 74.4, and that for other groups (given here in ascending proportions) the numbers were Ireland, 74.0; British Empire, 76.1; Germany, 82.1; Scandinavia, 86.2; Russia, 102.8; Poland, 108.3; Austria-Hungary, 113.5; Italy, 153.5.² The forces accounting for these wide differences are unquestionably complex, but cultural traditions with respect to the two sexes — the attitude of a people toward the education of its women — must be an important constituent.

¹ Van Denburg (24), pp. 100-106.

² Counts (4), p. 113, Table XLIV.

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Success or failure in school and elimination. Van Denburg's investigation, already frequently quoted in this chapter, included a study of the relationship between success, as measured by the average marks earned, and length of stay in high schools of New York City. The median numbers of semesters of stay for different averages of marks were as follows:¹

AVERAGE MARK	MEDIAN SEMESTERS OF STAY IN HIGH SCHOOL
90-100	8.0
80-89	7.0
70-79	4.5
60-69	2.8
50-59	1.8
0-49	1.2

These figures show that high or low marks have a significant connection with retention or elimination. Hunt found for the high schools of Minnesota included in his investigation that the percentages of failures in all subjects taken by graduating and nongraduating pupils were, respectively, 4.9 and 28.6. OBrien concluded in his study of high-school failures that "the percentage of failure for those leaving is no higher than for the ones who do not leave,"² but his conclusion does not take into account the *number of failures* for each pupil concerned nor the large number of pupils who dropped out before their success or failure had been recorded.

Other factors. Besides the factors dealt with at some length in the foregoing sections, it would be possible, if space permitted, to establish certain others. Certainly ill health sometimes operates to abridge the period of school attendance. Traits of volition or temperament or other non-cognitive aspects of mentality may shorten or lengthen the period of school training. The specific requirements of com-

¹ Van Denburg (24), p. 175.

² OBrien (19), p. 54.

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pulsory-education laws, and their degree of enforcement, are obviously influential. Among factors more strictly in the school situation are the remoteness or accessibility of opportunities for education on secondary or other higher levels, the variety of curricula made available, and the extent of retardation.

Retardation and elimination. Retardation has in effect been dealt with above in discussing the relationship between age and elimination, and it has been shown that over-ageness encourages early discontinuance of school attendance. It is, however, often treated as a distinct problem. The relationship between retardation and elimination will therefore receive brief additional discussion. In dealing with age as a factor of elimination it was shown that over-ageness itself is in no small part attributable to relatively low mental equipment. Terman sets up "mental inferiority" as "the chief cause" of retardation.¹ Among other factors of elimination named in the present chapter which may also be assumed to bring on retardation are poor cultural (including educational) traditions, ill health, remoteness from school opportunities, and to some extent also economic status and nationality or race. Therefore, if it is desired to keep one's eye on overcoming retardation as a practical school problem, it is necessary to cope with essentially the same forces as are at work in elimination, having in mind in addition that retardation itself hastens school-leaving.

The interrelationship of factors. A fact which has obtruded itself throughout the discussion of the factors of elimination is that they *seldom if ever operate singly*: they seem almost always to influence the length of stay conjointly. Economic status, for example, must frequently operate with cultural traditions, or with intelligence, or with both; or sex with economic status, or with nationality, or both. The influence of any factor may be associated, either positively or negatively, with that of any of the others.

¹ Terman (22), p. 82.

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This interassociation of factors makes it impossible in the present state of our knowledge to propose any grouping or organization of them that will recommend itself as at once discrete and logical. To the out-and-out educational determinists (if there be any such) the task of organization may seem a simple one, since native intelligence might be set up as the sole or almost the sole factor, the others all originating in it and therefore being subfactors to it. This organization would be simple, but it is untenable on the ground that length of stay in school is far from perfectly correlated with intelligence. One of the best groupings that can be suggested would be centered in (1) the home, (2) the child, and (3) the school. This would place under the first heading economic status, nationality or race, and cultural traditions; under the second, intelligence, age, and sex; and under the third such matters as failure, curricula, and the like. The objection is the one already raised, that this does not afford a fully discrete grouping of subfactors, since some factors would need to be placed under more than one of the three main divisions.

III. IMPLICATIONS FOR SECONDARY EDUCATION

Extra-school factors versus intra-school factors. Another conceivable organization of the factors of elimination is to group them as *extra-school* and *intra-school* factors. Such a division would ordinarily place the great bulk of the factors which have been listed — that is, intelligence, age, sex, economic status, nationality or race, cultural traditions, and the like — in the extra-school group; failure, curricula, and the like, are the only ones which would find a place in the intra-school group. This distribution impels the next conclusion, that the group of factors classed as extra-school is much larger in number and more influential in determining the length of stay in school than is the intra-school group. This is unquestionably true, and is contrary to the usual belief in the

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relative potency of extra-school and intra-school factors. The next step in this line of thought on the part of those who have to do with our secondary schools might be the assumption of a fatalistic complacency in the whole matter of elimination and retention.

Such an attitude is unwarranted. The error lies in regarding the factors that would be placed in the extra-school group as *strictly* extra-school for all purposes. The service rendered by this classification is not to free those in charge of schools of the obligation of vigorous and sustained efforts at retention, but rather to emphasize the magnitude of the task of overcoming the adverse influences. Since the most numerous and most influential of the factors lie deep in the fabric of human make-up and society, remedial agencies must likewise be fundamental and far-reaching. In this country we are committed to the democratization of education, and have taken gigantic strides toward achieving it in our secondary schools. This democratization is called for by our democratic political and social assumptions. These assumptions forbid us to entertain an attitude of fatalistic complacency toward the factors of elimination; they command us instead to set at work the constructive agencies that will finally overcome even those factors which may be looked on as extra-school.

The program for counteraction. The chapter concludes with a program of activities which may well be instituted to offset the influences of the factors of elimination, both extra-school and intra-school. Little more is done than to list the proposals. Some of these are dealt with at greater length in subsequent chapters, although the discussion at later points is not solely or specifically considered with regard to the problem here being considered.

1. The educational offering must be adjusted to the needs of those who are now being eliminated. New curricula must be established, new courses introduced, and old courses

VARIATION AND SELECTION OF PUPILS

adapted to the abilities and interests of those whom it is desired to retain for these higher levels of education. Without losing sight of fundamental values, we must modify the educational offering so it will recommend itself to those of poor cultural background. Vocational training should find increasing place. Grouping by ability, with its accompanying adaptation of content and method to levels of intelligence and ability, is also desirable.

2. Part-time coöperative and part-time continuation plans of occupational and other training should be helpful in that they afford the opportunity of "earning while learning."

3. Vigorous efforts should be made to reduce over-ageness.

4. An adequate guidance program should be put in operation.

5. Since one of the major functions of the junior high school is guidance, this type of reorganization will be helpful in overcoming elimination. The junior high school is a vehicle also for many other means of encouraging retention.

6. Our methods of teaching in secondary schools have heretofore encouraged selection rather than conduced to success and, therefore, to retention. In fact, the recitation method most typical of our schools consists more in *examination* than in *teaching*.¹ Real teaching will be helpful in overcoming elimination.

7. Health-education programs will assist in overcoming the influence of ill health as a factor of elimination.

8. School and community relationships should be developed, including such features as parent-teacher associations and employment of visiting teachers. In addition constructive school publicity should emphasize all the opportunities for training which are being afforded.

9. Efforts should be made to place financial aid where it is most needed and where it can be helpful in retention. This

¹ Judd, Introduction to the Scientific Study of Education, p. 234. Ginn and Company, 1918.

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can be done through a system of scholarships distributed to deserving pupils and through social legislation involving mothers' pensions, the provision and discriminating administration of which should be encouraged by workers in education.

10. Even with the rapid development of secondary education many young people are still remote from facilities providing it, especially those young people living in rural and sparsely populated areas. Among means which will make secondary education more accessible to them are consolidation, transportation, payment of tuition for nonresidents by the state, the county, or other nonlocal units, and the provision of dormitory facilities where distances are too great for daily trips from home to school.

11. Extension of the period of compulsory education is also often proposed. While this plan has some merit, we should not rely solely on coercion for the continuance of education, at least before the popular desire for and approval of education has been brought far enough by the other means already listed to afford some support to such legislation and to its enforcement.

The bulk of elimination has been seen to be largely from the grades now typically conceded to be secondary, that is, between the sixth grade and the early college years. This makes the problem of elimination also *primarily* one of secondary education. Nevertheless it would be a mistake to think of it exclusively in terms of the secondary school. Certainly those in charge of elementary schools have responsibilities toward it, as may be seen especially with respect to such features of the program as 3, 6, 7, and 8 above. College authorities also should be regardful of the problem, especially as through the rigidity of their requirements for admission they may sometimes overstimulate the operation of selective forces.

VARIATION AND SELECTION OF PUPILS

QUESTIONS AND PROBLEMS

1. Why is it appropriate to regard sex, maturity, and selection as factors of variation in *secondary-school pupils*, as well as heredity and environment, the two factors usually represented in discussions of variation?

2. Make a tabulation of the marks earned during a semester or a school year by a hundred high-school pupils.

3. Secure and chart the distribution of test scores in subjects other than those used as illustrations, or for other secondary-school grades in the subjects illustrated.

4. Investigate by questionnaire the subject preferences of pupils in a secondary school.

5. Ascertain for some high school a comparison of the number of units of different subjects and subject groups *elected* by those who have been recently graduated, tabulating separately the electives of boys and girls.

6. Ascertain the occupational preferences of pupils in a secondary school.

7. Investigate the out-of-school occupations and recreations of a group of high-school boys and girls to note the extent of variation.

8. Account as well as you can for the differences in the degrees of popularization of secondary education shown in Fig. 19 on page 49 of Reference 3 at the end of Chapter VI of this book.

9. Do you think that the recent influx of pupils is the result of conquering a single factor of elimination or several factors? Which factors have been most susceptible to counteraction?

10. Work out for some high school the percentage of retention according to the method used by Hunt as reported in this chapter.

11. What accounts for the fact that elimination in the ninth grade and before the opening of the tenth grade is often proportionately larger than between the eighth and ninth grades of the 8-4 organization?

12. Show how differences in the nature of the industries of two cities of equal size, or the relative proportions of different immi-

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grant groups, or other factors, are likely to affect the size of the high-school enrollment in them.

13. What limitations would you place on the degree of popularization of secondary education? In other words, where and on what basis can the line be drawn?

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IV

THE AIMS AND FUNCTIONS OF SECONDARY EDUCATION

I. RECENT REFORMULATIONS OF AIMS

Reformulation of aims from time to time only natural. The changes in American secondary education which have been touched on in preceding chapters have arisen out of changing concepts of the rôle of the institutions under consideration, especially as these concepts broadened in the minds of those directly or indirectly responsible for the secondary schools. These concepts may not always have been clearly formulated, but nevertheless they were influential in bringing about the changes reported, such as the shift from private to public support and control, and the increasing proportions of all youth in attendance. These trends in the secondary schools have likewise reciprocally stimulated reformulations. In consequence we are likely to have in any given period a number of statements of the goals of secondary education as these are seen by individual leaders or groups of leaders in the movement.

The formulation by the Commission on the Reorganization of Secondary Education. A host of such statements made during the last ten to twenty years are at hand. One of the most authoritative and at the same time most helpful is that prepared by the Commission on the Reorganization of Secondary Education of the National Education Association.¹ It is authoritative because of the personnel of the committee formulating the statement and helpful because of its sim-

¹ (a).

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plicity and intelligibility. It has already been widely influential in guiding the development of our secondary schools along constructive lines. It sets up for American secondary education the following seven objectives :

1. Health
2. Command of fundamental processes
3. Worthy home membership
4. Vocation
5. Citizenship
6. Worthy use of leisure
7. Ethical character

Although authoritative, helpful, and influential, this formulation harbors certain inadequacies of comprehensiveness and organization that handicap it in usefulness for a *full consideration* of the obligations of secondary education. These inadequacies become apparent in a comparison with a formulation now to be essayed, one which is in effect a composite portrait of the purposes proposed by individuals or groups of persons expressing themselves along these lines in recent years.

II. SOURCES AND METHODS OF THE PRESENT FORMULATION

The sources drawn upon. The materials used in this composite portrait of aims and functions of secondary education, with a single exception, appeared in print as addresses, as articles in periodicals, or as parts of volumes dealing to some extent with the purposes of education on the secondary-school level. The exception is the "Cardinal Principles of Secondary Education," which reports the foregoing formulation of objectives as prepared by the Commission on the Reorganization of Secondary Education. With this exception also they are all statements of individual leaders in education, most of them in close touch with the concerns of the secondary school. The reader conversant with the

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literature of education, and more especially of secondary education, will recognize at least most of the names in the following list, which includes most of those whose statements have been drawn upon: Franklin Bobbitt, J. F. Brown, J. S. Brown, S. S. Colvin, C. O. Davis, C. W. Eliot, Abraham Flexner, H. H. Foster, P. H. Hanus, E. N. Henderson, H. A. Hollister, Alexander J. Inglis, C. H. Johnston, W. D. Lewis, H. G. Lull, Paul Monroe, S. C. Parker, L. W. Rapeer, Edward Rynearson, David Snedden, and J. E. Stout. The years of publication of these statements are 1904, one; 1909, one; 1910, one; 1912, one; 1914, four; 1915, four; 1916, three; 1917, two; 1918, four; 1920, two; 1921, two. All but four appeared during 1914 or subsequently, and none before 1904. They may therefore be considered as representing the current conceptions of the rôle of the modern secondary school.

Space will not be taken to set forth the many difficulties encountered during the process of analysis of this sort, such as the confusion of overlapping categories, the danger of doing occasional violence to the original intent of the authors represented, and so on; nor will purposes only occasionally mentioned in the statements be referred to. Throughout the work of analysis the aim was to represent as faithful a composite portrait of the statements published as possible, rather than to make a study of how nearly these correspond to any formulation especially favored by the present writer.

III. THE AIMS

The general concepts. Among the statements of aim made are some obviously much more general than others. The sense of these may be summarized by referring to them as the aims of *general, or liberal, training* (aim 1 in Fig. 29) and of *meeting the needs of life* (2). Both are so broadly stated as to require at least as much of particularization as is afforded in subsequent categories. It is significant to note

AIMS AND FUNCTIONS

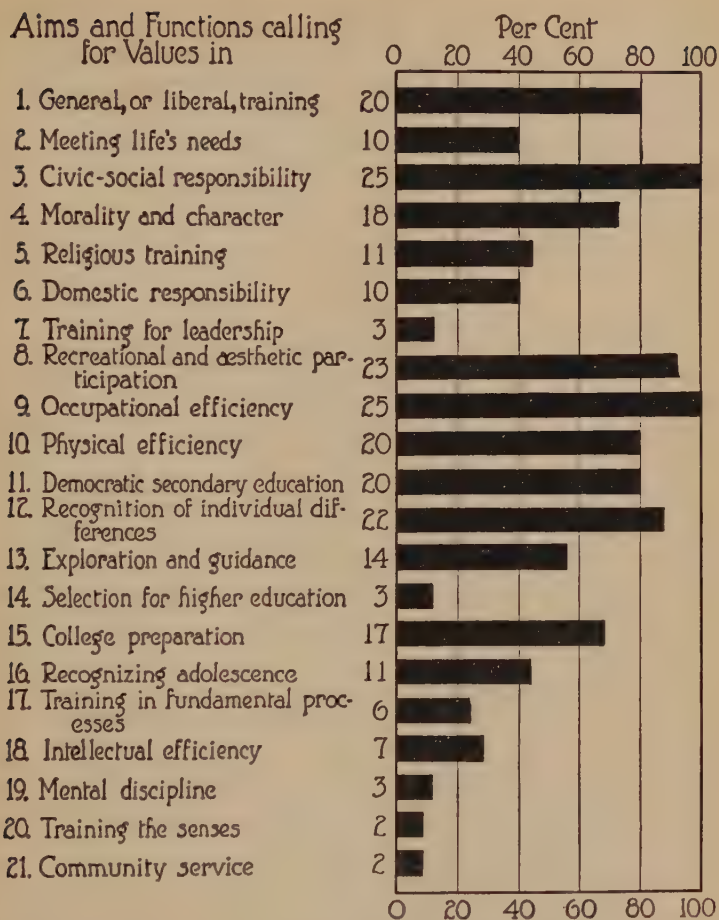


FIG. 29. Aims and functions of secondary education and the numbers and percentages in a total of twenty-five statements recognizing each

that most of the writers included in the analysis urge that the secondary school be a place of general training. The difference between the two aims may be understood to be

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that the first refers more commonly to the training essential for all than does the second, whereas the second pertains to all essential aspects of training, including those peculiar to the needs of the individual in his vocational capacity.

The civic-social-moral aim. The statements are unanimous in incorporating emphasis on either training for citizenship or for coöperative membership in society, or for both; that is, for *civic-social responsibility* (3). Closely related to this aim — in fact, practically inseparable from it — is the one demanding training for *morality* or *ethical character* (4), posited by almost three fourths of all the writers. And intimately related to both these aims are three immediately following: *religious training* (5), training for *domestic responsibility* or worthy membership in the home (6), and for *leadership* (7). As viewed in most of the statements made, religious training would lend support to training for civic-social responsibility and for morality and ethical character, and is conceived along broad undenominational lines closely akin to abiding moral enthusiasms. Training for domestic responsibility or worthy membership in the home, inclusive of the social aspects of sex hygiene, is an objective usually stressed as applicable to both boys and girls and is in essence an aspect of training for civic-social responsibility. The leadership contemplated by the few who propose this as an aim is of a civic or social sort. Therefore it is possible without violence to comprehend the five categories referred to as the civic-social-moral aim broadly conceived.

Training for recreational and æsthetic participation and appreciation. This aim (8) is recognized in one form or another by almost all the sources analyzed. In a few instances it is narrowly conceived, referring only to appreciation of the fine arts, classical literature, and the like; but for most of the authors it has wider meaning, touching many phases of life from the physical through the social to the most highly intellectual, and in ways profoundly essential. Several of

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the writers point out that the margin for leisure has been increasing for expanding proportions of our population, that because of the survival of ascetic and puritanic traditions our schools have been slow to meet this expanding need, and that they should no longer delay their development of a program in recognition of this need. This is desirable not only for its constructive value but also to offset the destructive influences of indulgence in recreations which are individually and socially detrimental and which are likely, in the absence of training, to be dominant.

Training for vocation. The aim that calls for training for *occupational efficiency* (9) is represented in a full count of the authors represented. A small proportion accept it in somewhat qualified form; others — a larger proportion — insist on the provision of a wide range of opportunities for vocational preparation; still others do not make clear the extent of occupationalization they would approve. But all would afford in the secondary schools opportunities for training to achieve this objective. It is often stated that occupationalization is required by the increasing proportion of the population of secondary-school age seeking education on this level and by further proportions who would be induced to seek it if there were a more generous recognition of this aim in our curriculum offerings.

Two of the writers represented, in addition to calling for vocational training, set up the objective of efficiency in *unspecialized practical activities*. Despite the importance of activities that can be classed under this head it does not seem desirable or necessary to add another to the four aims here to be accepted. The reason for this is that all of these activities that come to mind, or almost all, are readily classifiable under the other three aims listed. Thus Bobbitt names as illustrations twenty-one such abilities¹ — among them, for example, the "ability to make repairs, adjustments,

¹ Franklin Bobbitt (1), pp. 28-29.

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and additions to the house and its equipment," the "ability to keep the house in good order," the "ability wisely to select garments," and the "ability to perform the various activities involved in providing the family with food." The first, second, and last of these are phases of preparation for domestic responsibilities, which have been classified under the civic-social-moral aim; the third has important relationships to the aims of physical efficiency and recreational and æsthetic participation and appreciation. It is possible similarly to distribute to the three nonoccupational aims the knowledge, habits, attitudes, etc. that go to make up what is sometimes referred to as efficient consumption, since consumption other than for vocational purposes must be in ways that affect civic-social relationships, recreation, and health.

Training for physical efficiency. This (10) is another of the aims for which most of the leaders represented demand recognition in the secondary school. On account of the obvious importance of health, this may be admitted to the group of aims without argument in its behalf.

IV. THE FUNCTIONS

The relationship of aims and functions. Under the remaining rubrics have been placed those proposed purposes of secondary education which appear predominantly — although not universally — to have been intended more as *proximate* aims than as more nearly *ultimate* aims. They are for the most part in the nature of conditions under which secondary education must go forward the better to achieve the "ultimate" goals. For instance, without the recognition of individual differences among students (12) it would be difficult if not impossible to achieve any one of the four aims arising out of the analysis up to this point; namely, civic-social-moral responsibility, recreational and æsthetic participation and enjoyment, occupational efficiency, and physical

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efficiency. For want of a more satisfactory term the following purposes are designated as *functions*.

Achieving a democratic secondary education. The function of achieving a *democratic secondary education* (11) signifies, in the minds of those who posit it, bringing within the influence of the modern high school, as far as possible, "all the children of all the people." Evidences of the degree to which this has been accomplished have been presented in Chapter I. It has been seen that for the country as a whole the percentage of the population of appropriate ages (14 to 17 years of age inclusive) enrolled in secondary schools increased between 1890 and 1920 from 5.6 to 26.4. Illustrating for a single Mid-Western state, Minnesota, it may be reported that the enrollment in the state high schools represented the following proportions of the population of the state of the appropriate ages: 3.6 per cent in 1890, 9.0 per cent in 1900, 16.7 per cent in 1910, and 27.4 per cent in 1920. If to those enrolled in state high schools are added those in "high-school departments" (that is, high schools not meeting the standards of state high schools) and private secondary schools, the proportion in 1920 may be estimated to have attained a full third of those of the ages specified above. These are evidences of commendable progress. Even with these rapid strides, however, it is clear that there is still much to do before all desirable popularization of secondary education will be achieved, either in the state used illustratively or in the country as a whole.

Recognizing individual differences. Almost all the writers urge the *recognition of individual differences* (12) in ability, interests, and needs. The performance of this function becomes an obligation as soon as we make progress toward popularization, since wider diversity among the student body will accompany any significant increase in the proportion of young people of given ages who enroll in the schools.

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Exploration and guidance. More than half the writers urge that the high school perform the function of *exploration and guidance* (13): exploration in the sense of affording the student opportunities for trying out a variety of subjects and subject groups as well as for being tried out by them, and guidance in the sense of aid to a better planning of education and selection of occupation for the students. *Selection for higher education* (14) is not often separately called for in this body of literature, because it is *comprehended by exploration and guidance* and also because some of the writers object to selection when narrowly conceived. It is not unlikely that all those who posit the function of exploration and guidance would be disposed to agree with Suzzallo when he infers that a new motive "has transmuted the older and more or less subconscious function of selection and rejection of students into the contemporaneous and quite conscious policy of distributing school attendants more effectively within the complex ramifications of the modern school system. . . . This distributive function of the school operates within the school as educational guidance and across the gap between school and working life as vocational guidance and placement."¹ It must be obvious that the popularization of secondary education posited by almost all the writers consulted will, to the extent that it is achieved, increase our responsibilities in guidance. In fact, while the function of recognizing individual differences is corollarial to democratizing secondary education, exploration and guidance is corollarial both to democratization and to the recognition of differences among students. This function must be regarded as one of the most important in the modern secondary school.

Preparation for higher institutions. According to fully two thirds of those whose statements are being summarized *preparation for college and other higher institutions* (15) is

¹ Henry Suzzallo, in Introduction to Koos's "Junior High School," pp. iv-v. Ginn and Company, 1927.

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still to be retained as an objective for the group of students for whom advanced training is appropriate. In an important sense this preparation is analogous to the occupational training (9) to be provided for those not going to college, since special work taken by those who plan to continue their training in the higher schools should displace the special vocational courses for those who enter employment at the close of the secondary-school period. In this sense preparation for college is hardly a distinct function, but rather a phase of the aim of training for occupational efficiency. It will be so considered in subsequent portions of this chapter and elsewhere in this book.

The claim is often made that the public high school is becoming less and less a preparatory school, but we are seldom confronted by facts in proof. It happens that the study of the degree of popularization of secondary education in Minnesota, from which citation has already been made, was accompanied by an inquiry into the relation of the growth of the high schools to the growth of the University of Minnesota. A significant measure of the relation was the percentage which the number of freshmen in the university in any school year were of the number of graduates of the state high schools in the school year preceding. This measure may be regarded as a critical one, since the great bulk of the freshmen — approximately nine tenths in 1916-1917 — are graduates of the state high schools. Fig. 30 shows that for the five-year period 1889-1893 the proportion which the university freshmen were of the high-school graduates was little short of 100 per cent. This is the same thing as saying that during this half-decade the high schools were predominantly college-preparatory institutions. During succeeding half-decades the proportion declined rapidly, until by 1914-1918 it had dropped to less than 25 per cent. In the meantime, however, other higher institutions in the state began to attract the high-school graduates, until, during most of the

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ten-year period from 1910 to 1920, their total collegiate enrollment roughly equaled that of the university. It cannot be far from the truth to say that these other higher

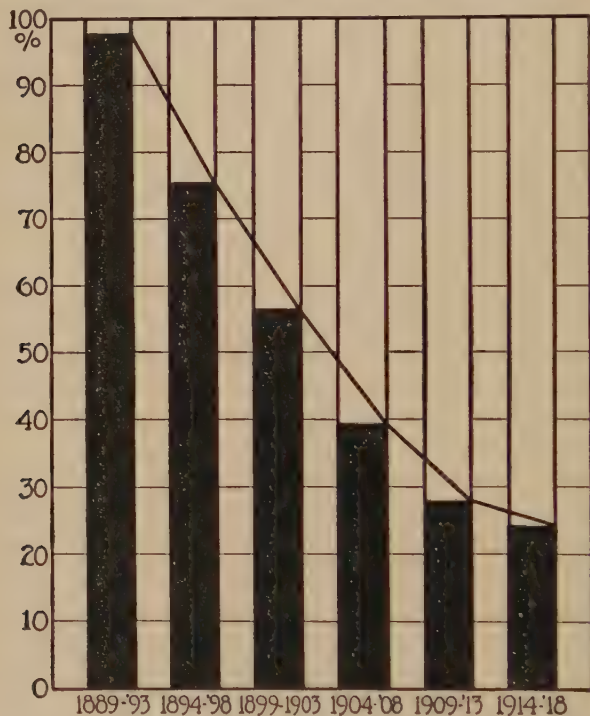


FIG. 30. Percentage which the number of freshmen in the University of Minnesota were of the number of graduates of the state high schools by five-year periods from 1889 to 1918. (Adapted from Rodney M. West and Leonard V. Koos's "Growth of the University in the Next Quarter Century," Report of Survey Commission, I, *Bulletin No. 25* (June 21, 1920) of the University of Minnesota, Vol. XXIII)

institutions are enrolling, as freshmen, high-school graduates roughly equal in number to those entering the university. Therefore the proportion of high-school graduates going on

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to higher institutions is for the state as a whole, probably between 40 and 50 per cent. This percentage would be much smaller if, instead of graduates only, all students were represented in the computations, since large proportions are eliminated before graduation. We may say, then, judging by the proportion of students continuing their education, that in Minnesota the public high school changed during a quarter of a century from an institution predominantly college-preparatory in function to one predominantly *non-college-preparatory*.

There is no reason to believe that facts for other sections of the country experiencing vigorous development of public secondary education would differ notably from those just cited. This is a shift of profound significance for those who have to deal with the problem of college entrance. While we may be disposed to agree with those whose statements have been introduced in the analysis here summarized, that the high school must continue to serve as a preparatory institution, we ought at the same time to be on our guard against placing strictures on its service to the majority of the students enrolled; that is, the non-college-going group. This we are likely to do by adhering to conventional practices in certification for admission to college, which may reflect an assumption that the secondary school is little if any more than a short and narrow isthmus between elementary and higher education.

Recognizing the nature of pupils at adolescence. Almost half the writers represented refer to the significant changes experienced by boys and girls during adolescent years and the need of recognizing these changes in the school régime (16). From what has been said in the preceding chapter concerning the physical and psychic changes taking place at this time, this function may be judged to be an important one. Because of the treatment there nothing more will be said concerning it at this point.

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Training in the fundamental processes. This function (17), posited by an approximate fourth of the writers, means that the secondary school should afford training in the "tool subjects," in addition to that already provided in the elementary school. The fields most often mentioned are the language arts, primarily reading and expression or composition, oral and written. But the computational skills also come in for frequent reference.

Fostering intellectual efficiency and transfer of training. In the next of the proposed purposes, fostering *intellectual efficiency* (18), we have an instance of a difficulty sometimes encountered in such a compilation as the present one, that is, of reproducing accurately the *organizations* of aims proposed by all the writers consulted. This is even more difficult than to reproduce the *meanings* faithfully. Some at least of those who are understood to posit the present purpose conceive of it as an ultimate goal of secondary education rather than as a proximate one. To others intellectualization appears to be more in the nature of a precondition to efficiency with respect to the aims. A difference between the statements classified under this head (18) and those classified under *mental discipline* (19) is that the proponents of the former usually refuse to accept the latter in the indiscriminating form in which it has often been advocated; they ask rather for a high level of mental performance and insist on mental efficiency along essential lines as an objective consciously to be striven for, rather than, in accordance with older conceptions, as a by-product of the educative process. To complete the exposition of these views it should be said that several writers who were unwilling to accept the disciplinary purpose in its older and more pervasive sense were ready to accept it in its qualified forms. If these who concede transfer of training in this qualified sense had been added to those reported to be positing mental discipline, the bar in the figure would have been much longer than it is.

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Although the problem of transfer of training represented in the concept of mental discipline will come up again for consideration when the subjects of study are discussed in later chapters, it is desirable to treat it briefly here while setting up the working formulation of aims and functions for secondary schools. Attitudes toward it have experienced at least two shifts during a half-century. The first of these was away from a blind confidence in the all-pervasive character of training. The almost utter abandon with which many of these earlier writers advocated the disciplinary purpose may be seen in the following illustrative quotation from a statement of the value of college training; namely, that the ancient languages and mathematics "are fundamental to all intellectual culture, and, when in any degree mastered, diffuse an influence over all other departments of knowledge." The first swing of opinion was to the opposite extreme of denying all possibilities of general training and holding a belief in specific values only. More recently the shift has been back toward the admission of *some* transfer of training and consideration of the best means of facilitating it. The modified point of view will next be illustrated by quotation from two among the best treatments extant, those by Bode and by Judd.

For example, Bode¹ approaches the problem of transfer by pointing out that conduct may be modified by experience through the "formation of habits" and the "perception of meanings." Since its "outstanding characteristic is not flexibility but fixity of response," habit is the opposite of transfer. However, "behavior becomes flexible or adaptive when reflex and habitual tendencies become the servant of meanings." Conduct becomes adaptable because meanings are transferable. "The conclusion, then, to which we are led is that transfer of training means the extension of application of meanings to new problems or new situations."

¹ Boyd H. Bode (3).

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One can conclude from Bode's subsequent discussion that transfer is facilitated by good native capacity and by training directed to the end of transfer:¹

No amount of training can convert dulness into genius, and if the individual is too slow-witted or too much upset by the emergency to use his resources, this fact can hardly be blamed on education. But, unfortunately, the failure to apply previous training to the new situation may be due to the character of the training. If the concepts are mainly verbal, too empty to furnish suggestions, then education must assume the responsibility. . . .

Concepts may be developed so as to be effective within a certain area, but the area may be so contracted as to make the training narrow and purely technical. When subjects are taught in this fashion, we cannot assume that perspective or breadth of outlook will be secured if a sufficient number and variety of subjects are taught. The remedy lies rather in a different method of presentation and a proper correlation of subjects, so that the particular subject or interest will be seen in its larger setting, in its relations to things at large. In the biological sciences the concept of evolution affords a tremendous educational opportunity. Moreover, scientific method takes on a new meaning and imposes a new obligation when it is seen, not simply as a means for securing control over natural forces, but as a protection against the intolerance and cruelty of bigotry and blind belief. When viewed from this standpoint, the scientific ideal or concept of open-mindedness and impartiality becomes transferable from the laboratory and the classroom to the affairs of daily living.

Another writer conceding transfer of training is Judd.² He says:³

The discussion of formal discipline as it has been carried on by recent writers can legitimately be expressed in entirely neutral terms. It is in fact a discussion of the degree to which training gained in one sphere of thought and activity . . . can be transferred to other spheres of thought and activity. No one denies that some kind of transfer takes place. The real questions at

¹ Bode (3), pp. 158-159.

² Judd (10), pp. 392-435.

³ Ibid. pp. 404-405.

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issue are what is the degree of transfer and what is its method. It should perhaps be reiterated that it is entirely out of keeping with the evidence to assume that there is anyone who believes that the transfer is uniform and absolute.

His conclusions as to degrees and methods of transfer may be seen in the following quotations:

The important psychological fact . . . is that the extent to which a student generalizes his training is itself a measure of the degree to which he has secured from any course the highest form of training. One of the major characteristics of human intelligence is to be defined by calling attention . . . to the fact that a human being is able to generalize his experience.¹

The application of a body of information to a particular situation has sometimes been regarded as psychologically identical in character with the possession of this information. Thus, it has been assumed in much of our school practice that if a student knows the principles of mechanics he will be able to discover these principles in operation in the ordinary facts of everyday life. This expectation is, of course, not justified. The boy who learns physics in the laboratory goes out in the workshop and passes many practical situations in which the results of his physics would be applicable, but fails utterly to recognize in these situations the physics laws which he knows in an abstract way. The school has undoubtedly been remiss in its attention to the phase of mental life which we here call application. Application is, however, a most difficult mental process, and needs to be learned just as the original principle has to be learned.²

Generalization of ideas and extension of any subject to its possible applications is . . . a larger and more significant aim in education than mere training in any given particular subject. Those who have opposed the doctrine of formal discipline by saying that school subjects at the present time do not give a generalized training are undoubtedly criticizing not the human mind, but our methods of instruction. It is, indeed, possible to find courses in arithmetic and algebra which are so narrowing . . . that it is doubtful whether they ought to be included in the course of study at all.

¹ Judd (10), p. 413.

² Ibid. pp. 421-422.

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On the other hand, there has been a very large body of experience which makes for the conclusion that any subject properly taught has a broadening influence upon the student's general experience.¹

There is much in common between the methods of facilitating transfer of training recommended by the two writers who have been quoted. Both conceive it as an obligation of the school to set up the conditions that will make for such facilitation. From the constructions placed on the answers of psychologists to a number of questions on the problem of transfer put to them by the Committee on Mathematical Requirements, it seems that on this score Bode and Judd would be in agreement with these psychologists, since the committee reports that "a majority . . . seem to believe that, with certain restrictions, transfer of training is a valid aim of teaching."² This is the view entertained here, transfer of training being listed with the functions of the secondary school. Let it be stated, however, that in the light of the older propensity to posit transfer values all too generously this function of transfer of training can be overestimated. Intellectual efficiency (18), already reported to be sometimes proposed, is acceptable, but will not be separately listed for two reasons: in the first place, as may be inferred from the foregoing treatment and quotations, it is in no small part comprehended by the concept of transfer of training; in the second place, in so far as it falls outside this concept, it is incorporated with the conventional notion of the school as a place of intellectual exercise and should not require special emphasis.

Other purposes claimed. Remaining purposes less frequently named, such as *training the senses* (20) and *community service* (21), will not be discussed or incorporated in the working list of aims and functions.

¹ Judd (10), p. 424.

² (XII) (67), p. 96.

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V. THE SIGNIFICANCE OF SUCH A FORMULATION

A restatement in summary. The aims and functions, as discovered by this endeavor to secure a composite portrait of recent writings dealing with the rôle of the secondary school, will now be stated in summarized form:

AIMS

1. *Civic-social-moral responsibility.*
2. *Recreational and æsthetic participation and appreciation.*
3. *Occupational efficiency* (inclusive of preparation for higher institutions for those planning to continue their education).
4. *Physical efficiency.*

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5. *Achieving a democratic secondary education.*
6. *Recognizing individual differences.*
7. *Providing for exploration and guidance.*
8. *Recognizing the adolescent nature of pupils.*
9. *Imparting knowledge and skills in the fundamental processes.*
10. *Fostering transfer of training* (with guarded acceptance).

The serviceableness of the formulation. This formulation should be able to lay claim to something of authority and utility. It may be looked on as to some extent authoritative because of the method of compilation used and the sources drawn upon in assembling it. It is, as has already been indicated, in the nature of a composite portrait of the rôle of the modern secondary school as seen by a number of persons or groups of persons who may properly be designated as leaders in education, many of them being especially concerned with secondary education. It is, admittedly, a better representation of the meaning and content of the statements analyzed than of their organization, which it would be impossible to reproduce in composite form. Its authoritative-ness has some meaning for its utility.

The formulation should be useful in part because it does not take recourse solely, as many former statements have

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done, to refulgent but well-nigh bootless expressions such as that education should aim at "culture" or "social efficiency." While not particularized to the extent requisite for determining all the details of the courses or the methods of presentation to be used, such a formulation contains some of the major principles of guidance to be followed in managing secondary schools and teaching in them. It directs attention to major aspects of happy and efficient living and to some of the avenues that will accelerate approach to this. The concepts included are much more useful as *working* aims and functions than is a statement that the secondary school should "meet the needs of life."

In contrast with the purposes entertained for the secondary school of an earlier day, this formulation is cast much more nearly in terms of present than of deferred values. Older statements called for training for leadership, selection for higher levels of training, and mental discipline much more frequently than do those concerned in the present formulation. Only a few writers of the group represented here mention these purposes. This shift was certain to take place as soon as this period of education came more frequently to be looked on as terminal, or culminal, rather than as preparatory. As has been shown in discussing preparation for higher institutions, it is being increasingly so regarded. Immediate life values in civic-social-moral relationships, in recreation, in health, and in occupational activities, and the conditions which will accelerate their achievement, are emphasized in this formulation.

The formulation compared with the objectives in the "Cardinal Principles." The objectives proposed by the Commission on the Reorganization of Secondary Education of the National Education Association have been listed in an earlier section of this chapter. The present formulation may be seen to differ from these objectives in respect both to organization and to range. A difference under the first head

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is that the civic-social-moral aim as here presented comprehends "citizenship," "worthy home membership," and "ethical character" as set up in the "Cardinal Principles." These objectives are all of a piece. It does not aid in clarification of thought with reference to secondary education to have these parts of one large civic-social-moral aim proposed separately before making a deliberate attempt at complete particularization for each of the objectives represented, a task not undertaken by the commission.

Another difference is the absence in the "Cardinal Principles" of any distinction between aims and functions, all the seven "objectives" being placed on a par as goals of the secondary school so far as their organization is concerned. Thus command of the fundamental processes is made to rank with ethical character, even though such command is clearly preliminary to the achievement of the remaining objectives. In the present formulation this purpose has been assigned a proximate position.

Moreover, of the six purposes which are classed as functions in the present formulation and mentioned by a large proportion of the writers represented, this is the only one which is found at all in the commission's list of objectives, the unrecognized aims being fostering transfer of training, achieving a democratic secondary education, recognizing individual differences, providing for exploration and guidance, and recognizing the adolescent nature of the pupil. It is not that these objectives are not present by implication or expressed statement in other portions of the report of the commission; the general trend of the report tends to be as comprehensively constructive as desirable. For instance, no one giving the report a careful reading will fail to gain the impression that the commission believes emphatically in a democratic secondary school, or that it would insist on the performance of the purpose of guidance. The comment is merely that the list of objectives, on which the attention of

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the country has been focused, is not so comprehensive as it might well be from the standpoint of encouraging all desirable changes in the American secondary school. This is somewhat synonymous with saying that where a systematic and extended professional study of secondary education is essayed, a more inclusive formulation is required. Where, on the other hand, a more popularly conceived and more easily comprehensible statement is desired, the formulation by the commission has at least the argument of brevity in its favor.

VI. IDENTITY AND DIFFERENTIATION OF AIMS AND FUNCTIONS FOR JUNIOR AND SENIOR HIGH SCHOOLS

The length of period of secondary education in the minds of the writers represented. With these concepts of the aims and functions of secondary education before us we can proceed to consider this question: Which of these aims and functions apply to the full period of secondary education and which, if any, pertain peculiarly to either the junior or the senior high-school unit? Before attempting this canvass, it is desirable to admit that during the examination of the literature it was not always clear how long a period of secondary education each of the writers had in mind. Some, at least, were thinking of a six-year period; still others were referring to the four-year period in most frequent use. It is the impression of the present writer that the remaining authorities had neither of these periods specifically in mind, but were considering the rôle of secondary education irrespective of its duration. There seems little, if anything, on this score to invalidate the sort of canvass now to be essayed.

The aims in the two periods. It seems wise to accept the civic-social aim as applying to the full period of secondary education; that is, without distinction in the extent of obligation in the two units. Doubtless the means of achieving

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the aim must be different for the two levels of education concerned, but the obligation with respect to the aim is common to the junior high school and the senior high school. The same thing may be said of the recreational and health aims. Concerning the aim of occupational efficiency, however, practically all the writers on the subject agree that this is an obligation peculiar to the senior high school and one which the junior high school should seldom, if ever, be asked to discharge. The period of specialization should be postponed for most students at least until the end of the ninth grade, the only exceptions being in the case of those who are over age or who seem destined to discontinue their education with the close of the junior-high-school period. Even for these, training should be much more general than special.

The functions in the two periods. The obligation for the performance of at least four of the six functions lies with almost equal weight on the two units of the new secondary school. These functions comprise the achievement of a democratic secondary education, the recognition of individual differences, the recognition of the nature of the child at adolescence, and the fostering of transfer of training. There is, doubtless, a small proportion of the population who, although they can profit from junior-high-school education, ought not to continue into the senior high school, even with all possible adaptation of courses to meet the needs of the less capable. The proportion is hardly large enough, however, to free the upper unit to a marked extent from the performance of the function first named. Since individual differences persist — even tend to grow larger — in the later high-school years, their recognition is equally essential in the junior and senior divisions. Adolescence also is a characteristic of the pupils in both divisions and therefore must be recognized in both, although early adolescence may require treatment somewhat different from that of the later portions of the period.

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In the case of the two remaining functions — exploration and guidance, and training in the fundamental processes — there must be a marked degree of differentiation of obligation in the two units. Although they are functions of the full period of secondary education, the burden of their performance rests more heavily on the junior high school than on the senior high school. This is true in the case of training in the fundamental processes, for the reason that equipping the pupil with the tools of an education must be one of the first concerns of the lower school, the proportional emphasis decreasing as he moves upward in the school system. The senior-high-school grades will continue to be responsible for some of the training in the vernacular, and the junior high school will have even larger responsibilities along this line, besides additional duties in the way of imparting computational skills, etc.

The more important differentiation seems to be in the case of exploration and guidance. As clarification of the rôle of the junior high school proceeds, there is a mounting conviction that one of its major functions is exploration and guidance. The Commission on the Reorganization of Secondary Education, whose statement is represented in the present analysis, expressed itself as follows: ¹

The six years to be devoted to secondary education may well be divided into two periods, which may be designated as the junior and senior periods. In the junior period emphasis should be placed upon the attempt to help the pupil to explore his own aptitudes and to make at least provisional choice of the kinds of work to which he will devote himself. In the senior period emphasis should be given to training in the fields thus chosen.

Glass has emphasized the scope of the guidance function of the new unit as follows: ²

The junior high school has been variously entitled as the finding, the sorting, the trying-out, and the testing period of the public school system. It is a probationary period before the vital

¹ (5), p. 18.

² (VII) (5), p. 20.

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question of educational or vocational choice is finally determined. Exploration of individual differences, the revelation of educational and vocational opportunities adaptable to individual differences, guidance of educational or vocational choice, equalization of opportunities, the adapting of educational offerings to ascertained individual needs rather than the conforming of all pupils to one educational pattern, and the stimulation of educational or vocational vision which conditions all progress in secondary education — all these and other purposes to adapt the educational program to the "individual" are the objectives of the junior high school.

The essence of the distinction. It may be too obvious to require mention that the two chief differences in aims and functions of the two secondary-school units as here posited are *complementary* to each other. The outstanding difference in their aims is that the senior high school should to some extent be given over to occupational specialization, inclusive of college preparation. The distinction with respect to functions is that the junior high school must stress exploration and guidance, which in the nature of things must *precede* occupational and other specialization. One of the principal defects of the conventional four-year high school is that during this brief period we have been trying, without being fully aware of the fact, to achieve both of these purposes simultaneously for a given student. The inevitable result is the curricular confusion which brings the student to the end of his high-school career with "a little of everything but not much of anything" to his credit in the records of the institution from which he is being graduated.

QUESTIONS AND PROBLEMS

1. Place in chart or in diagrammatic form, so as to facilitate comparison, three of the formulations of aims in the following selected references.

2. Compare any one of these formulations with that presented in this chapter.

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3. Discuss the advisability of positing a religious aim as distinct from a civic-social-moral aim broadly conceived.

4. Where is the often-proposed aim of "culture" represented in the formulation proposed in this chapter?

5. In what sense may selection be thought of as a phase of the function of guidance?

6. Compute for some high school of your acquaintance the proportion of its graduates who go on to higher institutions. Ascertain the percentage which these are of the high-school entering class of which they were members.

7. Where in the formulation of aims and functions given in this chapter, excepting in item 21 of Fig. 29, is the obligation of the school to the community represented?

8. Of what value is an acceptable formulation of aims to a high-school teacher? to a high-school principal?

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V

RELATIONSHIPS TO ELEMENTARY AND HIGHER EDUCATION

I. SIGNIFICANCE AND NATURE OF THE COMPARISON OF AIMS AND FUNCTIONS

The necessity for a consideration of relationships. The last chapter was concerned with the presentation of a formulation of aims and functions of the secondary school, the formulation being based on the results of a canvass of purposes posited for this period of education by a number of leaders and groups of leaders in the field. It is not possible, however, to obtain as clear an understanding of the rôle of the secondary school as is desirable without considering with some care the place in education of each unit of the system of schools, more especially the rôle of the secondary school as compared with the rôles of the elementary school, the college, and the university. A question which those peculiarly concerned with secondary education must frequently ask is To what extent should the secondary school have aims and functions in common with or different from those of elementary schools and those of higher institutions?

The method of this study of relationships. To provide a somewhat more satisfactory basis of response to this question than has been available up to the present, studies have been made, after a manner similar to that reported for the secondary school in the last chapter, to determine how the purpose of each of the three remaining units of the system — the elementary school, the college of liberal arts, and the university — is conceived. This is in essence the making of

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composite portraits of the concepts of purposes found in large numbers of writings dealing with each of the institutions represented. These composite portraits will be presented in the order in which the institutions have been named, and the presentations will be followed by a summary comparison for all institutions from the elementary school through the university. Efforts to bring out similarities and differences will be made both in the separate treatments of each unit and in the comparison by final summary.

As with all composite portraits, those to be shown may not be fully faithful representations of the single statements utilized. Nor can they competently depict the great variety of forms of organization to be found in such a large number of statements consulted. It is hardly possible, moreover, that violence has not occasionally been done by placing a particular expression under some particular category, because the intent of the author may not be perfectly clear or because meanings shade into one another almost imperceptibly. Such difficulties cannot, however, significantly affect the general conclusions, since the larger meanings stand out unequivocally.

Not a complete study of relationships. The comparison of aims and functions as here essayed cannot, of course, be regarded as a complete canvass of all aspects of the problem of articulation within the system, or of all similarities and differences among the several educational units. It does not go into detail — to use examples only — in matters of ages and abilities of pupils and students, nor of curricula and teaching staffs. It does, nevertheless, provide most of the basic principles to be followed in determining or working out appropriate relationships in these and other respects. Many of these detailed relationships come up for consideration in other chapters of this book; for example, preparation in the secondary school for higher institutions is dealt with in the chapter on the program of studies.

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II. THE RÔLE OF THE ELEMENTARY SCHOOL ¹

The sources of the composite portrait. As with the formulation of aims and functions of secondary education presented in the last chapter, the literature analyzed is that appearing either in periodicals or as parts of volumes. Among the twenty-two writers whose statements are represented are F. P. Bachman, F. G. Bonser, E. P. Cubberley, R. L. Finney, G. E. Freeland, F. M. McMurry, S. C. Parker, C. L. Phelps, David Snedden, and H. B. Wilson. The years of publication of the materials used are all recent, ranging from 1912 to 1923. The median year is 1916.

At least one recurring factor tends to detract from the approach to unanimity of the findings of the study — the absence of agreement on the period of years covered by elementary education. In only four cases was it clear that the writers had in mind a six-year unit, and in twice this number the eight-year school was considered. In the remaining cases the length of the period was neither mentioned nor clearly implied, although the impression was gained that a majority were thinking and writing about the longer unit. Some of the effects of the length of the unit kept in mind by the writers become apparent in the presentation of the results of the analysis.

The aims. The meanings of the rubrics under which the statements were finally classified are so nearly apparent, especially with explanations afforded in the preceding chapter, that their exposition can be of the briefest sort.

To provide the training which shall be *common to all* (aim 1 in Fig. 31) is recognized, in well over a third of the sources, as an obligation of the elementary school. *Preparation for the needs of life* (2) is recognized in almost a half. These two aims are so broad as to be much in need of the particularization provided in subsequent categories.

¹ Adapted in large part from Koos (6).

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More than four fifths of the writings posit the need of providing for *training for civic-social responsibility* (3), some making special mention of the obligations of the citizen, but most of them speaking of social responsibilities in the broader sense, inclusive of training for citizenship proper. Closely

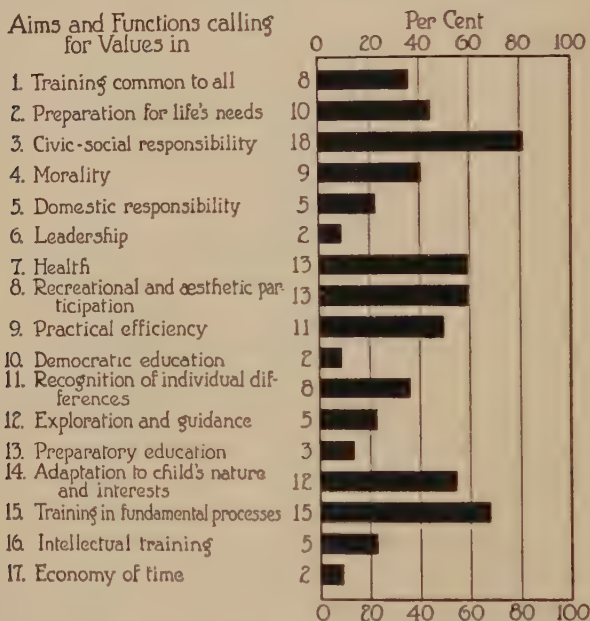


FIG. 31. Number and percentage of twenty-two statements recognizing each aim and function of the elementary school

allied with expressions of this idea are those recommending training for *morality* (4), *domestic responsibility* (5) and *leadership* (6). These four aims (3 to 6) may well be regarded as training for civic-social-moral responsibilities broadly conceived.

Training for *health*, or physical efficiency (7) and training for *recreational and æsthetic participation and appreciation*

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(8) are recognized with equal frequency, occurring in almost three fifths of all statements. They loom large in the minds of educational leaders of today. For the most part the expressions classified under *practical efficiency* (9) refer to the unspecialized practical activities of life common to all, as this statement has been explained in Chapter IV. Not more than three of the eleven statements may be understood to propose out-and-out occupational training, and only one of these is by an author having the six-year elementary school clearly in mind. Nevertheless the reader of statements concerning the aims of the elementary school is likely to be surprised at the indiscriminateness with which training for vocation is mentioned.

"*Information*," "*habits*," "*attitudes*," "*ideals*," and so on. One who reads at all extensively in the field of elementary-school aims frequently encounters statements calling attention to the desirability of equipping the child with information or knowledge, habits or skills, attitudes, appreciations, ideals, and the like. While the place of these goals of education in the organization of aims was not always indicated by the sources drawn upon, some of the writers made the relationships clear. Parker referred to them as the "psychological aims of teaching" and the "more detailed aims of teaching which we can use to bridge our thinking from the broader social activities to the results that we want to produce from day to day."¹ In achieving the health aim, for example, we would need to equip the pupil with information to guide him in his behavior as it concerns his physical welfare, to establish in him the habits conducive to physical efficiency, to instill in him the ideal of physical fitness, and so on. These are statements of aims which overlap those already presented. The elementary school must impart information, establish habits, instill ideals, etc. with respect to each of the four large aims so far apparent in this canvass; namely,

¹ Samuel Chester Parker (8), chap. ii.

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training for civic-social-moral responsibility, for health, for recreational and æsthetic participation and appreciation, and for practical efficiency.

This type of objective is mentioned sometimes, although less frequently, by the writers represented in the formulations of aims for secondary schools, college, and university, as reported in this book. No further reference will be made to them as the comparison proceeds.

The functions. Under the remaining rubrics are placed those purposes of elementary education which appear predominantly to have been intended more as *proximate* than as *ultimate* aims. They are, for the most part, as stated in a similar connection in the foregoing chapter, in the nature of conditions under which elementary-school work must go forward the better to achieve the aims. In the absence of a more satisfactory term they are here designated as *functions*.

It is not to be expected that writings dealing with this part of the school system, in which attendance is compulsory, would be much concerned about *democratizing education* (10) on this level. Only two of the twenty-two writers urge that elementary education should be "open at the top" and should, for the sake of those who do not go on, afford more than training in the three R's only. More than a third insist that elementary education *look out for individual differences* (11). Most of these imply that the work should be differentiated to fit the children to play different parts in later life, but no one of the four authors who appear to have the six-year elementary school in mind proposes such differentiation. A smaller proportion urges differentiation by ability for the purpose of approximating homogeneity in the "common-to-all." One asks for both types of differentiation. Only five of them ask that the elementary school concern itself with one aspect or another of *exploration and guidance* (12), and only three look upon elementary education as merely preliminary or *preparatory* (13).

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A significantly large proportion of the writers urge *adapting education to the child's nature and interests* (14), and more than two thirds posit as a function of the elementary school *imparting command of the fundamental processes* (15), or equipment with the tools of learning. A majority of these are careful to point out that these functions are "not ends in themselves" but are preliminary to the larger aims and values. The subjects most frequently named in this connection are reading, writing, spelling, and arithmetic.

In considering the purpose of *intellectual training* (16) we have an instance of a difficulty identical with that referred to in the former chapter, of reproducing faithfully the proposed organization of aims. Some at least of the five authors reported as positing this aim propose it as an ultimate goal of elementary education rather than as a proximate goal. To others intellectualization seems to be a precondition to efficiency with respect to the aims. Some of the five commit themselves nearly, but not wholly (as does one other not included with them) to mental discipline as a function of the lower school; others, not reported in the figure, are prepared to accept transfer of training if it is conceived in qualified and not all-pervasive form.

Summary, and comparison with secondary-school aims and functions. Among the most frequently recurring types of expression found in the literature dealing with the purposes of elementary education are those which insist that it provide at least that portion of training which should be common to all, and that it prepare for the needs of life. The canvass made, however, indicates that as a group the authors are not content merely with statements as comprehensive as these, since they so generally propose additional aims calling for civic-social-moral responsibility, physical efficiency, recreational and æsthetic participation and appreciation, and practical efficiency. The aim last named is so often proposed

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that it will be retained as a major one, even though, as shown in the discussion of secondary-school aims, it is feasible to distribute the particularizations classifying under it to other aims in the list. That the attainment of these ultimate aims may be accelerated, they propose also the performance of such functions as recognizing individual differences, adapting education to the child's nature and interests, and affording training in the fundamental processes. Other functions, especially those of giving intellectual training and providing for exploration and guidance, are proposed with considerable frequency.

Comparing these concepts of the aims and functions of elementary education with the formulation for secondary education presented in Chapter IV, we may say that both periods are to be concerned with preparation for the needs of life and that both are to be periods of general education, although it may be seen from a consideration of the aims that the secondary school is to allow also for specialized vocational training for those not going on and for college preparation for those who are to continue. The elementary school will emphasize, more than the high school, training for unspecialized practical activities. The remaining aims — namely, civic-social-moral responsibility, health, and recreational and æsthetic participation and appreciation — the two periods of education have in common. It is only natural that there should be more differences in functions, since these are likely to be peculiar to a particular institution or period of education. The only function that calls for much greater emphasis in the elementary school is training in the fundamental processes, whereas at least three stand out as more significant for secondary education ; namely, achieving a democratic education, recognizing individual differences, and providing for exploration and guidance. The nature and interests of children are to be recognized in both periods, but in the later period the aspect of nature referred to is

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adolescence. The differences between adolescence and pre-adolescence were dealt with in Chapter II.

The general impression from the comparison is both of identity and of difference, although it leans somewhat more heavily toward similarity. The differences are, however, profoundly significant, demanding in the secondary period opportunities for some measure of specialization, for guidance, and for the recognition of adolescent nature. Our school system should be so organized as to provide amply for this shift in aim and function.

III. THE PURPOSES OF THE COLLEGE

*A comparison of former and recent concepts of the purposes of collegiate education.*¹ The next unit in American education to be considered is the college of liberal arts; that is, the "college" in the specific sense of this term rather than in the generic sense. The digest of college aims differs from those already made for the secondary and elementary schools in this and the foregoing chapters in that it includes a comparison of those advocated for the college of today with those current a half-century or more ago. This comparison discloses certain similarities and differences that should prove helpful in understanding current conceptions and the relations of college education to the education given in the secondary school and the university.

The materials used in the comparison of college aims, past and present, again consist of articles or addresses in periodicals and of parts of books. For the older period they are twenty-seven in number, with dates of publication ranging from 1842 to 1876 — through a third of a century. For the more recent period the dates of imprint range from 1909 to 1921. The respective median years of publication of the earlier and later materials are 1867 and 1918.

¹ In this section the writer has drawn heavily on Leonard V. Koos and C. C. Crawford (17).

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In the following digest and comparison, purposes infrequently proposed in the literature will not be discussed unless they are often proposed for the secondary school, as shown in Chapter IV.

The purposes found and the extent of their recognition. One of the most striking contrasts to be found in the comparison is that involving *disciplinary values* (aim 1 in Fig. 32). While not all the writers of the modern period are prepared to relinquish claims to validity of the disciplinary objective, those of the earlier period were well-nigh unanimous in approving it. The contrast would be even more striking if the character of these statements and not merely their proportionate frequency could be shown. The utter abandon with which many of these earlier writers advocated the disciplinary purposes was illustrated in Chapter IV.

"*Liberal education*" (2), or "*liberal culture*," is the most commonly recognized objective in the earlier period, and its recognition in the modern period is matched by that for only one other objective. As everyone who has tried to do so knows, it is next to impossible to generalize on the great variety of definitions of liberal training which one meets with in a study of this sort. The suggestion may be ventured that an approach to the core of the meaning of most of these is (a) that such training must be general and nonoccupational rather than special or occupational, or (b) that the mind is "deepened and broadened" until it is "liberalized" — until it is "made free of the world that man's intellect has conquered for us." Yet there are a few writers in the modern period who look for cultural training through occupational education. What is meant by the terms grouped under this head is incorporated to some extent in the other aims found during the canvass. This is well instanced by the aim which comes next.

The materials on *training for civic and social responsibility* (3) record the second of the marked contrasts between the

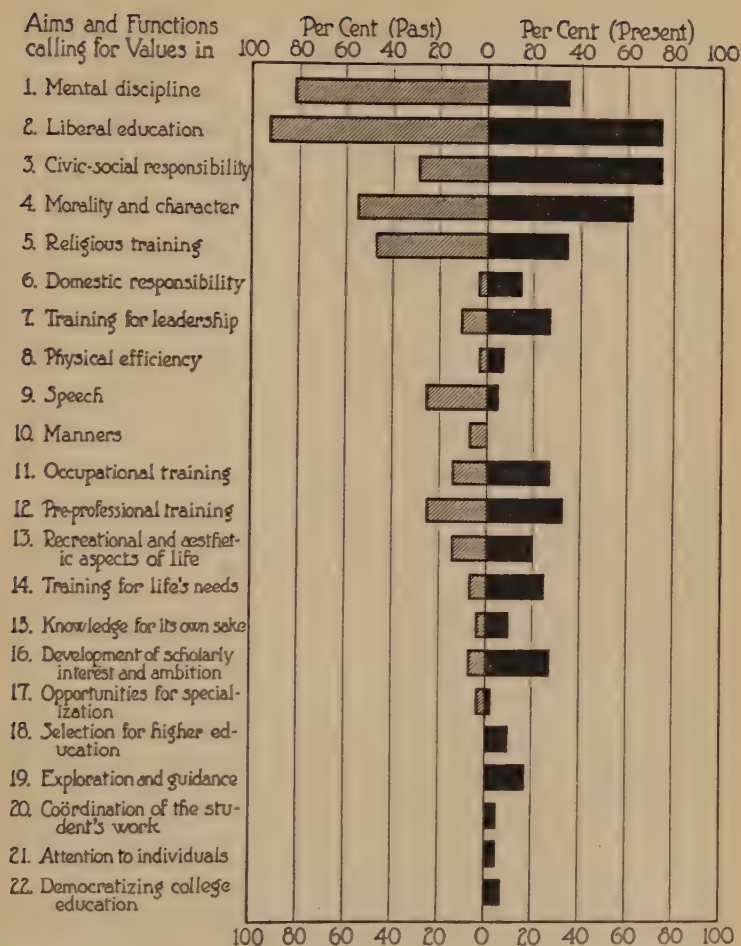


FIG. 32. Percentages of statements, past and present, recognizing certain college aims

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conceptions characteristic of the two periods. Here we have a contrast opposite in kind to that shown in the materials on the aim first mentioned; that is, instead of falling off, the appreciation of this aim has increased. This enhancement has been not merely quantitative, but qualitative as well. The aim is recognized in the earlier period by such statements as the need of training for "duties of citizenship" or for the development of an "intelligent public opinion." In the later period emphasis is commonly placed on the "socialization" of the student so that he may be ready to "serve the age," be a "servant of humanity," and assist in "rebuilding the world." Few representatives of the earlier period suggested special training for attaining this end; in the later period almost all those who recognize it recommend, specifically or by implication, the introduction of curricular materials to accomplish the purpose. The contrast found comports with the change from the earlier individualistic manner of life and thinking to the modern social point of view.

The values of *morality and character* (4) held a prominent part in educational thought during the earlier period and seem to have maintained their importance. As is to be anticipated from comments made above, the social significance of this aim is more frequently emphasized today than it was in the middle of the nineteenth century. The *religious* aspect of training (5) receives approximately equivalent recognition in the thinking on college problems in the two periods. Any difference in favor of the earlier period will, in the opinion of many readers, be compensated for in the broader appreciation of social values as already indicated. *Domestic responsibility* (6) is now included in the statements of college aims more commonly than in former times. As in the summarized aims of secondary and elementary education, this responsibility is to be laid on both sexes — on men just as much as on women. It is not occupational training for women that is

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emphasized here, but the education that will tend to conserve and enlarge the influences of the family unit in our social life. *Leadership* (7) is more often posited as an aim in the recent period than in the earlier one. The sort of leadership most often indicated is social in character, rather than the leadership of expert knowledge and skill, represented by the specialist in some academic or professional field. As in the study of secondary-school aims, it is a leadership closely related to the aim of civic-social responsibility.

Bodily health (8) is infrequently mentioned as an objective in either period.

In view of the perennial emphasis of the need of developing opportunities for *occupational training* (11), it is interesting to note that neither in the earlier period nor more recently has there been any large proportionate willingness to admit this type of education into the college. To be sure, the vocational idea shows some gain, since the percentage for the recent period is almost twice that for the earlier one, and approximately a fourth of the recent group of statements urge training for occupation. Yet the desire that the college curriculum remain "liberal" and not become vocational is reflected in statements of a negative type found in the materials used: fifteen, or 55.6 per cent, of the writers of the earlier period insist that the college should *not* concern itself with occupational training, and eighteen, or 45 per cent, of the later period express the same opinion. This frequent energetic negation suggests a frequent demand which these statements seem intended to ward off.

A somewhat larger proportionate part of each group is willing to concede the desirability of *pre-professional training* (12). With this group have been included also those few statements stressing the description of the college as a place where the basis of subsequent specialization is laid, rather than as a place where training for specialization goes on. The proportionate recognition attains to almost a third

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among modern writers. The difference between the two periods is really greater than the numerical data indicate, since writers of the earlier period were inclined to refer to the *indirect* preparatory values of traditional subjects, whereas the later statements speak of the matter in terms more nearly descriptive of current practices of arranging pre-professional curricula for college students.

Training for *recreational and æsthetic participation and appreciation* (13) through the development of abiding interests in various kinds of art finds occasional recognition in both periods, somewhat more frequently in recent years.

Preparation to *meet the needs of life* (14) was seldom mentioned formerly, but was referred to in a full fourth of the materials representing the modern period. When these "needs" were named they fell under heads such as training for civic-social responsibility, occupational preparation, etc. The statements included under this head are sometimes vigorous and sweeping protests against current offerings and requirements in our colleges.

Several purposes find their first champions in the modern period. Four statements urge the *selection* of students (18) in college for the upper levels of training, deploring the attempt to educate those who cannot or will not profit by work on the upper levels. Seven authors urge upon the college the task of *exploration and guidance* (19), not in these terms, but in substantial effect. Only two are of the opinion that the college has need also of giving more *attention to individual students* (21). If the desires of three of the writers are accomplished, the college will become *a more democratic institution* (22) by making its admission requirements more flexible so as to admit students with a greater variety of preparation than is now permissible and by taking steps to encourage the attendance of a greater proportion of the population.

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Comparison of the aims of secondary school and college. If a formulation of the purposes of college education is essayed on the basis of frequency of mention in the literature examined, only two aims stand out in the wide array just summarized. One of these is the concept of liberal education, a term so comprehensive as to require some particularization through additional aims; the other is civic-social-moral responsibility in the same broad sense as was given to the term in summarizing the aims of secondary (as well as of elementary) education. Other aims are much less frequently proposed. Among those that enjoy considerable though not striking frequency of mention, and that are at the same time analogous to aims and functions *often* proposed for the secondary school, are occupational training, pre-professional training, recreational and æsthetic participation and appreciation, and exploration and guidance. Pre-professional training is analogous to college preparation as proposed for secondary schools, which, in the formulation for the lower unit, has been classified as a phase of training for occupational efficiency. Other purposes much less frequently proposed for the college, but well represented in the secondary-school formulation, are the aim of physical efficiency and the functions of democratizing education and affording attention to the individual student. Fig. 29 (p. 153) shows that these are assigned high importance in secondary education.

A remarkable feature of the distribution of purposes proposed for the college is the fact that only two appear frequently which are not often proposed for the secondary school. These are mental discipline and the development of scholarly interest and ambition. The first of these, in the older sense still accepted in college circles, is a concept so threadbare as to have been practically discarded by those writing on behalf of elementary and secondary education, although considerable numbers are prepared to accept it in qualified form as applying to the lower schools.

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The chief conclusion from this comparison of composite portraits is that the rôle of the college of liberal arts as seen by its friends is not essentially different from that of the secondary school, except that there is not the same approach to unanimity on most of the items as there is for the lower school.

IV. UNIVERSITY AIMS

Sources of the composite portrait. Almost all the twenty-five persons whose statements were used in the study of the rôle of the university were connected with universities. Ten were university presidents, and all but a few of the remainder were teachers or other members of the staffs of such institutions. The dates of imprint were all recent, ranging from 1912 to 1920. The median year of publication was 1917.

The purposes found. *Research* (aim 1 in Fig. 33) is the purpose of the university most frequently put forward, being mentioned in all but three of the sources analyzed. The *instructional* purpose (2) is posited by well over half the writers. About a third of the group mentioning it approve it only as a necessary accompaniment of the business of research; but the remainder place no such restriction on it, apparently being ready to allow it a wider range of operation in university activities than that of being a mere handmaiden to research.

Preparation for professional life (3) is the second most frequently recognized purpose of the university. Most of the writers took occasion to name one or more professions by way of illustration. In the order of frequency of mention the first seven are engineering, medicine, law, agriculture, commerce, the ministry, and education, although many others are named. Under another heading (4) have been grouped the "training of leaders in science, industry, and government," the giving of advanced academic training, and

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"graduate training." As these essentially are forms of professional training, there would have been much justification for including them under the preceding aim. If this had been done for the instances in which professional training

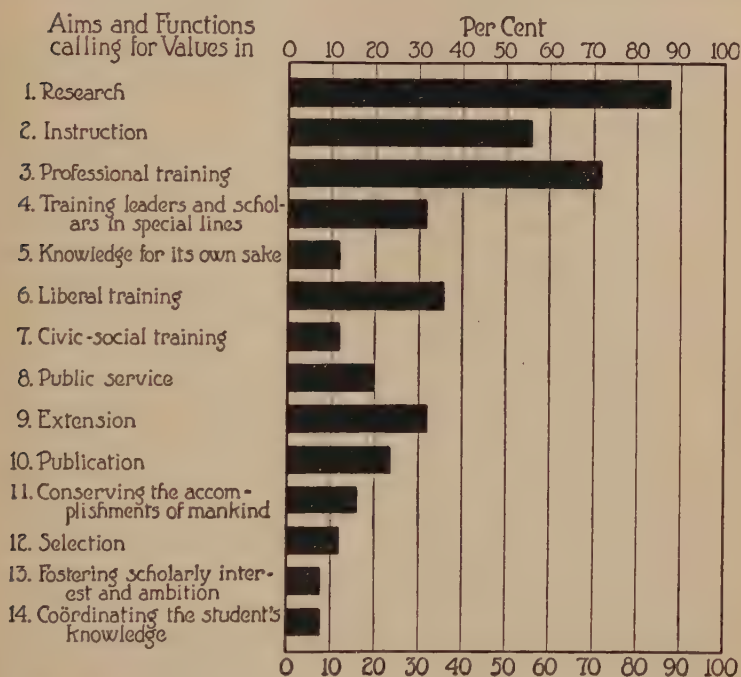


FIG. 33. Percentages of twenty-five statements recognizing certain purposes of the university

was not also specifically mentioned, the proportion reported for professional training would have mounted to four fifths of all sources.

Three writers would have the university *encourage the pursuit of knowledge for its own sake* (5). *Liberal training* (6) is proposed in slightly more than a third of the statements.

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This proportion would be somewhat reduced if from it were subtracted one instance in which it is contended that broad occupational training is liberalizing and another in which it is recommended that the liberal training be restricted to the first two (or junior-college) years. *Civic-social training* (7) is not often proposed as a purpose of university education.

Some writers speak of the desirability in the university of rendering *public and social service* (8). There have been included here only those statements that refer to the recognition of immediate community needs, not such long-range service as "promoting the general welfare." Three means of service are suggested: *extension* (9), *publication* (10), and *conserving the accomplishments of mankind* (11) in libraries, museums, etc.

The functions of *selection* (12), *fostering scholarly interest and ambition* (13), and *coördinating the students' knowledge* so as to knit it into something of a related whole (14) are the only ones other than those already named which were proposed more than once in the materials analyzed.

Comparison with secondary-school aims and functions. The outstanding impression from a comparison of secondary-school and university aims is that of remarkable contrasts. Whereas the comparison with college aims was one resulting dominantly in similarity, the two composite portraits now compared show widely different features. Research is not at all represented in the lower unit. Preparation for professional life is occupational training, which is called for in the formulation of aims for secondary schools, but it is on a distinctly more advanced level than is that urged for secondary schools. The nearest approaches to similarity are in the aims of *liberal training* (1) and *civic-social training* (2). But it should be noted that although the first of these is posited by only about a third of those setting up aims for the university, it is found in four fifths of the materials pertaining to secondary-school aims; the second is posited in an even

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smaller number of instances for the university, whereas those who write for the secondary school are unanimous in its support.

With only minor exceptions, therefore, *the trend of concepts is toward the university as a place for specialization, rather than for general training*. This trend is clearly not in complete accord with present practices in universities. In these institutions large colleges of liberal arts, and more especially swollen registrations in the freshman and sophomore years of these colleges, attest to a mixture of general, or liberal, education and education for specialization. The dominant concepts of university aims are therefore like those for the other units being considered — goals toward which the writers believe the institutions should be moving, rather than goals already attained or immediately attainable.

V. FROM ELEMENTARY SCHOOL TO UNIVERSITY

A summary by comparison. With the formulations of purposes of all the main units in the American organization of education now before us as presented in this and the preceding chapters, it is possible to summarize the relationships of the secondary school to the other periods of education — to throw light on its place in a properly articulated educational system. This summarized consideration will be facilitated by Fig. 34, which sets forth the proportionate frequencies of recognition, as reported in this and the foregoing chapter, of each type of concept for each of the institutions represented; namely, the elementary school, the secondary school, the college, and the university.

There are both marked similarities and differences in the aims and functions frequently proposed for elementary and for secondary education. Whereas it is often proposed that the secondary school be concerned with general or liberal training, that which is "common to all" is usually men-

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tioned only where the elementary school is concerned. The proportionate recognition shows that there is agreement that both schools should be held for achieving at least three of the four aims; namely, civic-social-moral responsibility, recreational and æsthetic participation and appreciation, and physical efficiency. The leaders in elementary education posit training for practical efficiency in the unspecialized sense only. Those writing for the secondary school, on the contrary, propose specialized training for occupations, although there are some who urge at least partial continuance of training for practical efficiency in the secondary school. Doubtless there should be a shift from this to specialized training during the secondary-school period. One phase of opportunities for specialization to be provided during this period of secondary education is college preparation. No one recommends that this should be a part of elementary education.

Because the period of secondary education has not been compulsory, as is the elementary period, leaders in the high-school field are moved in much larger proportions to urge that it be democratized, in the sense of attracting to it, and of adapting it to, "all the children of all the people." In common with those who speak for the elementary school, they agree that individual differences must be recognized. In their minds secondary education is to be a period of exploration and guidance, whereas this function is much less frequently proposed for the elementary school. If proportionate recognition is to be accepted as indicative, they believe that the secondary school has less obligation for training in the fundamental processes than has the lowest unit in the system. Large proportions of both groups of authors posit the need of recognizing the nature and interests of pupils, but they differ in that those who mention it in connection with the secondary school refer to the characteristics of adolescence. There appears to be less of

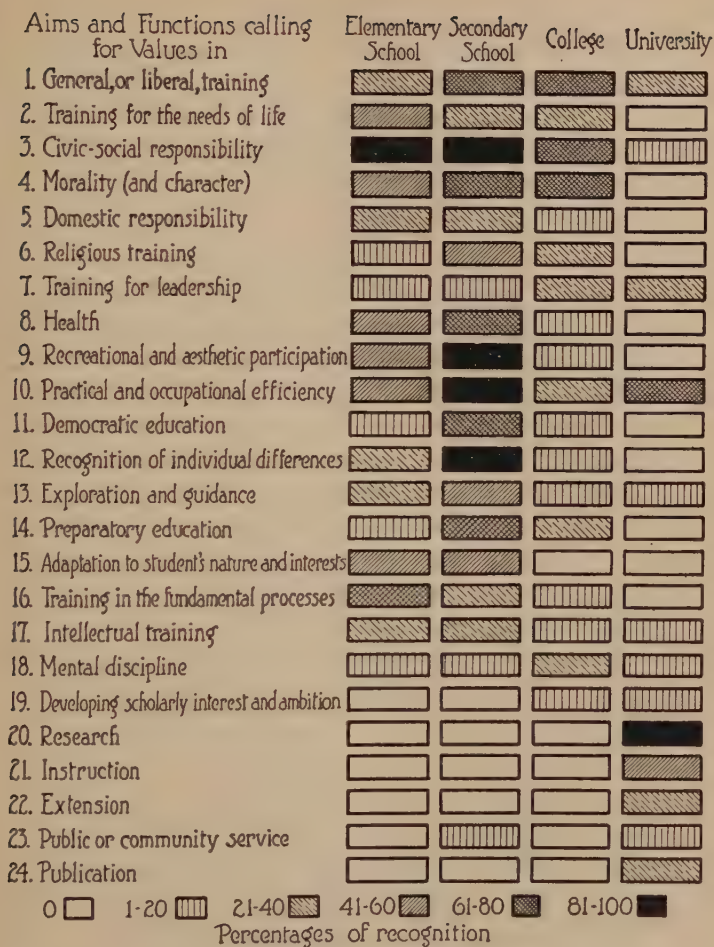


FIG. 34. Proportionate recognition in the literature examined for each unit in the system of each aim and function of education

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agreement on functions than on aims for these two periods of education, elementary and secondary.

College aims are in agreement with those of secondary education on the score of general, or liberal, training. There is agreement also as to the rôle of these two periods in training for civic-social-moral responsibilities broadly conceived. Among aims and functions which are often proposed for secondary education, but which are much less frequently (although sometimes) recognized on behalf of the college, are physical efficiency, occupational efficiency (inclusive of pre-professional preparation), recreational and æsthetic participation and appreciation, exploration and guidance, democratization of education, and attention to the individual student. The only purposes coming in for frequent mention in literature pertaining to the college and not also often proposed for secondary education are mental discipline and the development of scholarly interest and ambition.

The rôle of the university, as this has been summarized in the foregoing section, is in most respects distinctly different from that of the secondary school. On account of the similarity of purposes in secondary school and college, the same tendency to contrast obtains between college and university.

Certain other conclusions may be drawn from the proportions depicted in Fig. 34. The nearest *approach to unanimity* of the writers is in the opinions on the rôle of secondary education. For this portion of the system of education there is a surprisingly large extent of agreement on a wide variety of aims and functions. Next in their approach to a consensus of opinion are those writers dealing with the elementary school, but they are almost matched in this respect, if not fully, by those proposing the aims of the university. The impression of agreement in the institution last named is enhanced by the large proportion of spaces *in outline* (that is, without recognition) in the university column. The institution which is in the most anomalous situation with respect to

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unanimity concerning its aim and function is the college of liberal arts. There is a thin spread of recognition over a wide range of purposes, with large proportionate recognition of only a very few.

The most distinct *break in continuity of aim and function*, as one progresses from the elementary school to the university, takes place between the college and the university. This is indicative of a belief in a *profound shift of emphasis at this point*. The data, on the other hand, give an unmistakable impression of continuity of posited aim and function across the first three columns, although the decisiveness of the conclusion is somewhat obliterated by the small proportionate recognition of many purposes in the college column. But it is not at the same time weakened by the vigorous emergence in this column of any significant aim or function unrecognized for elementary or secondary education. If we judge from what is disclosed in this comparison, it might be possible to look upon the first three units as comprehending the period of general education and upon the last unit, the university, as the place of acknowledged professional and other specialization. This would be more acceptable if occupationalization of training for those who will not advance to the highest, or university, level, were admitted at points near the ends of their periods of education.

Inferences for reorganization. In this situation it seems appropriate to conclude that the more general acceptance of the junior-college plan, and the adaptation of the lower units to it, would make for definite elimination of the non-descript character of college purposes and would lead to a better allocation of aim and function, thus bringing order out of the present chaos in higher education. Although the junior college is discussed at some length in Chapter VII, it is pertinent here to point out in brief some of the meanings of its advent for the clarification of function in the developing organization of American education.

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By extending the acknowledged period of secondary education to include two more years and by placing our line of demarcation neither at the beginning nor at the close of our present four-year period of collegiate education but at its midpoint instead, allocation of purpose to each unit and differentiation among them should take care of themselves almost automatically. Most of the aims and functions found to be largely recognized for secondary schools would at once be applicable to the new level and should give to the first two years of what is now administered as college work a new and real significance. By regarding these two years as terminal grades in an extended period of secondary education, general opinion with reference to them would become clarified and practice could become functional. The clarification would be hastened by the approximate identity of functions in secondary and collegiate education already found in the results of the analyses presented. Moreover, the purposes held to be appropriate for the period of university education would naturally apply to the last two years of college — these years being the proper time for the beginning of specialization leading toward a professional destination and for the type of training appropriate to the period of life and the typical age at which the average student becomes a college junior.

QUESTIONS AND PROBLEMS

1. What aspects of the relationships between elementary and secondary education are not included by the method here used in canvassing the problem? By examining the table of Contents and the Index ascertain whether they are dealt with elsewhere in this book.

2. What aspects of the relationships between secondary and higher education are not included by the method here used in canvassing the problem? By examining the table of Contents and the Index ascertain whether they are dealt with elsewhere in this book.

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3. Discuss the subjects of study typical of the fifth or the sixth grade from the standpoint of the aims and functions of the elementary school.

4. Discuss, from the same standpoint, the subjects typical of freshman and sophomore years in college.

5. Restate in summary the similarities and differences between the aims and functions of elementary and secondary education.

6. Do the same for the secondary and higher education.

7. Compare the aims proposed in one or more of the references (except number 6) under "Elementary School," below, with the analysis shown in Fig. 31.

8. In the same way compare the references under "College" and "University" on page 200 with Figs. 32 and 33.

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VI

SECONDARY SCHOOL ORGANIZATION: SIZE AND DISTRIBUTION OF HIGH SCHOOLS

I. DESCRIPTION OF HIGH SCHOOLS BY SIZE AND DISTRIBUTION

Problems in the organization of secondary education. Having during the progress of Chapters II-V considered the population of secondary-school age, the purposes peculiar to the secondary school, and the relations of these purposes to those of lower and higher schools, we are in a position to take up more extensively than was done in Chapter I a study of the facilities for education on this level. Attention will first be directed, during five chapters, to problems in the field of the *organization* of secondary education, in the broad sense of the term. This will be followed by a treatment, extending over several chapters, of the materials of education, that is, the courses and curricula to be pursued by the pupils. All that was accomplished in Chapter I toward a study of these facilities was to show the extent of popularization of secondary education and to afford a brief description of the types of institutions now dominating the field. This and the four following chapters will deal successively and more at length with the *size and distribution of high-school facilities* (the present chapter), the *junior high school and junior college* (Chapter VII), the *rural-high-school problem* (Chapter VIII), *vocational secondary education* (Chapter IX), and *other types of education on the secondary level* (Chapter X).

The treatment in the present chapter is composed of two main divisions. The first of these is concerned with the dis-

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tribution by size (as measured by enrollment) of high schools in the United States as a whole and in certain states used illustratively. Because the number of small high schools found is relatively large, and because the suspicion of inefficiency in matters of cost and otherwise is against the smaller institution, the second main section is devoted to an inquiry into what accounts for this large proportion. The chapter is concluded with a brief consideration of inferences from the causes. It may be assumed that the great bulk of the high schools represented are four-year institutions.

Distribution of high schools by enrollment. The data drawn upon here to show the distribution, by numbers enrolled, of the high schools of the United States and of four states (Montana, California, Massachusetts, and Virginia) pertain to the school year 1917-1918, and are drawn from statistical reports of the United States Bureau of Education.¹ For the country as a whole almost a fourth of the high schools enrolled 25 pupils or less, and an even larger proportion enrolled from 26 to 50 pupils. This means that *more than half of all the high schools* of the country for that year were serving 50 pupils or less — an astonishing fact! Many are scarcely more than feeble and almost negligible upward extensions of small elementary schools; but they are counted among our high schools none the less. There are considerable numbers and proportions of high schools in the next few enrollment divisions (see Table XIX and Fig. 35), but the distribution thins out rapidly from this point toward the really large high schools.

The distribution for Montana shows even larger proportions of high schools in the small enrollment divisions. Two fifths of the high schools in this state enrolled 25 pupils or less, and three fifths 50 pupils or less. The attenuation toward the larger enrollment is consequently even more

¹ (3), pp. 15-28.

SIZE AND DISTRIBUTION OF SCHOOLS

TABLE XIX. NUMERICAL AND PERCENTAGE DISTRIBUTION BY SIZE OF ENROLLMENT IN 1917-1918 OF PUBLIC HIGH SCHOOLS IN THE UNITED STATES AND IN MONTANA, CALIFORNIA, MASSACHUSETTS, AND VIRGINIA

NUMBER OF PUPILS	UNITED STATES		MONTANA		CALIFORNIA		MASSACHU- SETTS		VIRGINIA	
	Num- ber	Per Cent of Total	Num- ber	Per Cent of Total	Num- ber	Per Cent of Total	Num- ber	Per Cent of Total	Num- ber	Per Cent of Total
1-25	3222	23.1	50	40.3	5	1.8	10	4.2	152	36.6
26-50	3820	27.4	25	20.2	40	14.5	45	18.9	160	38.6
51-75	2166	15.5	16	12.9	35	12.7	27	11.3	45	10.8
76-100	1256	9.0	13	10.5	29	10.6	14	5.9	21	5.1
101-125	764	5.7	6	4.9	24	8.7	15	6.3	11	2.6
126-150	456	3.2	1	0.8	22	8.0	13	5.5	4	1.0
151-175	348	2.5	0	0.0	19	6.9	6	2.5	3	0.7
176-200	265	1.9	2	1.6	10	3.6	6	2.5	4	1.0
201-225	171	1.2	1	0.8	7	2.6	4	1.7	2	0.5
226-250	139	1.0	0	0.0	5	1.8	7	2.9	0	0.0
251-275	124	0.9	0	0.0	5	1.8	5	2.1	1	0.2
276-300	110	0.8	1	0.8	6	2.2	4	1.7	0	0.0
301-325	86	0.6	1	0.8	4	1.5	2	0.9	0	0.0
326-350	95	0.7	0	0.0	8	2.9	4	1.7	0	0.0
351-375	66	0.5	0	0.0	3	1.1	6	2.5	0	0.0
376-400	64	0.4	0	0.0	1	0.4	4	1.7	2	0.5
401-425	54	0.4	1	0.8	2	0.7	0	0.0	0	0.0
426-450	46	0.3	0	0.0	2	0.7	3	1.3	0	0.0
451-475	33	0.2	1	0.8	2	0.7	2	0.8	2	0.5
476-500	34	0.2	1	0.8	1	0.4	1	0.4	0	0.0
Over 500	632	4.5	5	4.0	45	16.4	60	25.2	8	1.9
<i>Total</i>	13,951	100.0	124	100.0	275	100.0	238	100.0	415	100.0

marked than for the country as a whole. Transfer of attention to the distribution for another Far Western state (California) discloses a singular contrast, there being only a few high schools in the smallest division, and about a seventh and an eighth of all high schools in the two next larger divisions. For all enrollment divisions from this point onward to the division of largest high schools included, the proportions are almost without exception larger than for the United States as a whole. The distribution for a New England state,

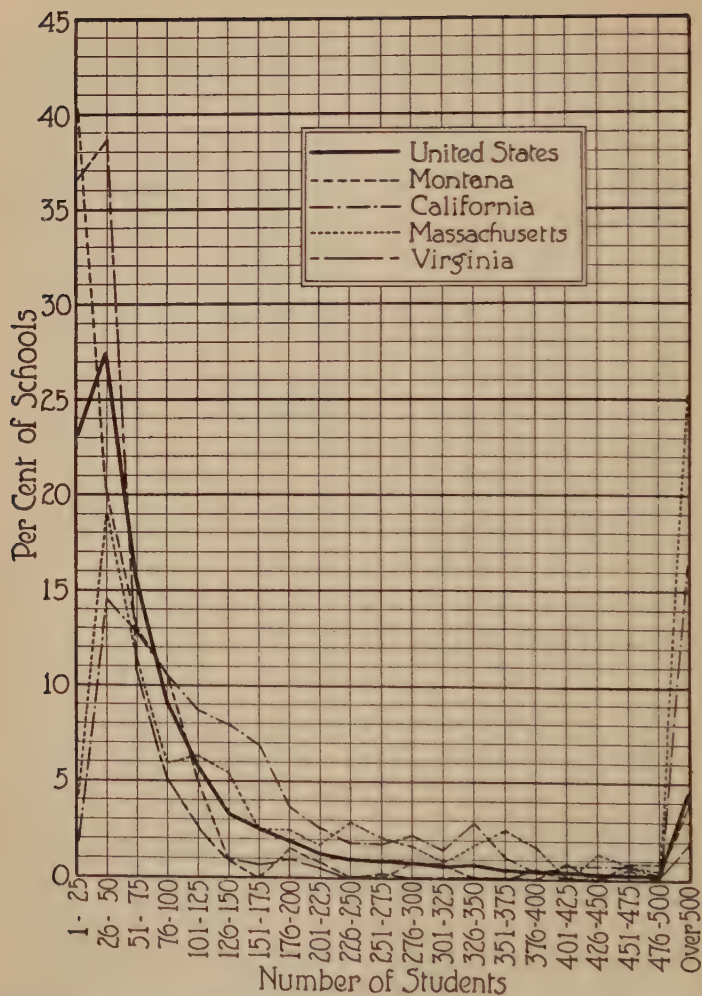


FIG. 35. Percentage distribution by size of enrollment of high schools in the United States, and in Montana, California, Massachusetts, and Virginia

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Massachusetts, is much like that for California, whereas the distribution for Virginia, a populous southern state, is somewhat like that for Montana, rather than for California or Massachusetts. In generalizing on the size of the high schools in states like Massachusetts or California, because of the contrast they afford to the other two states, it is well to remember that they, too, have considerable proportions of high schools with small enrollments, and that, although the problem of the small high school is not so acute with them, they are not so fortunate as to be free from it.

The frequency of large high schools. When the high schools with more than 500 pupils are divided into two groups, the frequencies are as follows: ¹

STATES	NUMBER OF HIGH SCHOOLS WITH	
	501 to 1000 pupils	1000 or more pupils
United States	354	278
Montana	4	1
California	22	23
Massachusetts	41	19
Virginia	5	3

One may conclude that for the country as a whole there were rather large numbers of large high schools in 1917-1918, and that the four illustrative states show anticipated differences in this respect. In view of recent rapid growth these numbers must be much larger at this writing than for 1917-1918. For the year referred to the high schools with the five largest enrollments were (1) Polytechnic Evening High School (boys), Los Angeles, 8440 pupils; (2) Commercial High School (boys), Brooklyn, 7508 pupils; (3) Morris High School (co-educational), New York, 6733 pupils; (4) Washington Irving High School (girls), New York, 5785 pupils; (5) Stuyvesant High School (boys), New York, 5325 pupils.

¹ Computed from Table IV in (3), p. 19.

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City, village, and rural high schools. An interesting paradox appears in another use made of the data concerning enrollments of high schools of the United States. For this use the schools were classified as city, village, and rural. The term "rural high school" as adopted for the comparison to be made "is one supported by a state, a county, a township, or a district . . . , or by an independent village which had a population less than 2500 in 1910. . . . Many of the rural high schools are located in cities having a population of 2500 or over, and in many instances serve as city high schools as well, but are supported by a rural taxing unit; i.e., by a unit larger than that determined by the corporate limits of the city proper. In case the city had a population of 10,000 or over, such a dual high school has been considered as a city high school. . . ." ¹ Remaining high schools were designated as "village" when the populations of the municipalities ranged between 2500 and 4999, and "city" when the population was 5000 or over.

TABLE XX. NUMBERS AND PERCENTAGES OF HIGH SCHOOLS CLASSIFIED AS CITY, VILLAGE, AND RURAL, AND THE NUMBERS AND PERCENTAGES OF PUPILS ENROLLED (1917-1918) ²

TYPE OF SCHOOL	SCHOOLS		PUPILS		AVERAGE NUMBER OF PUPILS
	Number	Per Cent	Number	Per Cent	
City	1,385	9.9	903,844	52.1	653
Village	776	5.6	135,017	7.8	171
Rural	11,790	84.5	696,758	40.1	59
<i>Total</i>	13,951	100.0	1,735,619	100.0	124

According to this classification only 9.9 per cent of the schools are city high schools, an even smaller percentage are village, and all the remainder — 84.5 per cent, or *more than five sixths of all* — are rural. On the other hand, *more than*

¹ (3), p. 9.

² Ibid. p. 5, Fig. 5.

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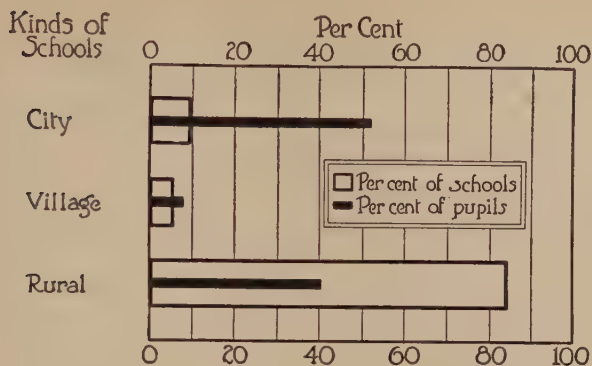


FIG. 36. Percentages of high schools classified as city, village, and rural, and percentages of all pupils enrolled in them. (From (3), p. 5, Fig. 5)

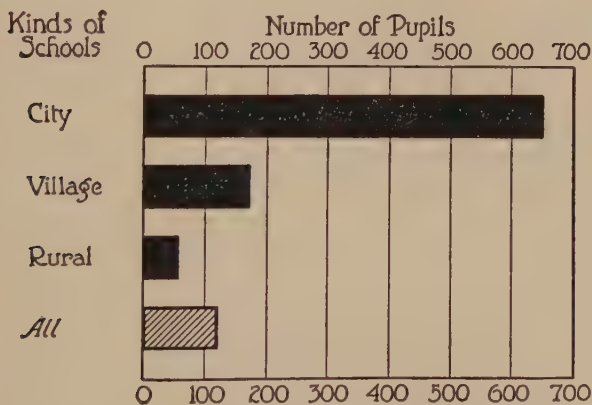


FIG. 37. Average numbers of pupils enrolled in high schools classified as city, village, and rural. (From (3), p. 5, Fig. 5)

half of all pupils are enrolled in the city high schools, and about two fifths are in the rural high schools, the remaining small percentage being in the village high schools. The paradox mentioned is in the fact that although the typical high school

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is rural, the typical pupil is enrolled in an urban high school. The paradox has its explanation, of course, in the much larger enrollments of the average city high school. This average is more than ten times as great as that for rural high schools.

II. CONDITIONS AFFECTING THE SIZE OF HIGH SCHOOLS

Some illustrative hypothetical determinants of the distribution of high schools by size. The large proportion of small high schools shown, and the wide variation from state to state as illustrated, raise the question of how these situations come about. What are the conditions which affect the distribution in a section or a state? The question is an important one, well deserving what has never been accorded it — extended investigation. Notwithstanding the dearth of conclusive information the problem cannot be ignored. It will be dealt with here by scrutinizing briefly the influence of several hypothetical determinants. The factors sometimes mentioned in such connections — namely, (1) the degree of popularization of secondary education in a state, (2) sex segregation and race segregation, (3) the competition of schools on private foundations, (4) the distribution of the population, and (5) state policies touching the distribution of schools — are to be considered.

Popularization. One might easily conjecture that the degree of popularization of high-school education in a local community or a state has an appreciable influence on the size of high schools. With other conditions constant the median enrollment in the high schools of one state with 20 persons in every 1000 of the population in high school would be twice that in another state with 10 persons in every 1000 in high school. The range in median high-school enrollments in the forty states is from 29 pupils in the lowest enrollment to 210 pupils in the highest, and the range of popularization from 5.3 persons per thousand in the lowest to 27.0 for the

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highest.¹ Both of these are wide ranges, but relatively the range is somewhat greater for the median number of pupils enrolled. There is, however, only a moderate degree of correlation. A simple method of testing this out may be described. By this method the states are assigned ranks in the order of popularization by numbering the highest 1, the next highest 2, and so on. The same is done for the median enrollment. It is found that 15 of the first 24 ranks by extent of popularization are above the middle of the states ranked by median enrollment, whereas a chance distribution would give only half the 24, or 12. In consequence 15 of the lower half of ranks by extent of popularization are to be found below the middle of the states ranked by median enrollment. It is to be concluded that as far as the degrees of popularization here represented are concerned, they are *to some extent, but not strikingly*, interrelated in a causal way with size. They might affect size more if the differences in popularization were greater.

Sex segregation and race segregation as determinants. If provisions for secondary education in general should be made for boys and girls separately, such a practice would make for smaller enrollments, since it would tend to cut possible coeducational enrollments into two parts approximately equal. As will be seen in a later chapter, private secondary education is often provided with sex segregation. This is not true for public secondary education, since in 1919-1920, of a total of more than 14,000 high schools reporting, only 76 provided for sex segregation, 39 for boys and 37 for girls. The conclusion is that sex segregation is *not a determinant* of size in any state or in the country at large.

Race segregation is, however, significant for size of high schools. Of the four states used illustratively in an earlier section of the chapter the only one having a large proportion of negroes in the total population is Virginia. In 1920 her

¹ (3), pp. 21, 49.

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colored population was 690,017, which was 29.9 per cent of her total population. Even for as late a year of report as 1921-1922 the number of public high schools for negroes in Virginia supplying data to the Bureau of Education was only 7, these enrolling a total of 1670 pupils. This is an extent of popularization of only 2.4 per thousand. The percentages of negroes in the three other illustrative states are Montana 0.3, California 1.1, and Massachusetts 1.2, as compared with 29.9 per cent in Virginia. The measures of popularization (in number per thousand of the population) in these three states and Virginia are, respectively, 21.5, 27.0, 20.8, and 11.9. The measure of popularization for whites only in Virginia was not far from 18. The median high-school enrollments for the four states are, respectively, 37, 128, 131, and 32. The inference is that *race segregation has some influence on the size of enrollment in high schools*, although in cities with large populations in which residential segregation of races is insisted upon, as is done in Virginia, this factor need not make small high schools.

Competition of private schools. Very large numbers, relatively, of pupils enrolled in private secondary schools would lower the distribution and reduce the median enrollment in public high schools. The percentage ratios of enrollments in public high schools to all secondary-school enrollments in the four illustrative states were, in 1921-1922, Montana, 94; California, 93; Massachusetts, 87; Virginia, 86.¹ These percentages show a somewhat greater preference for private education in the East than in the West, but the differences seem not to be in harmony with the respective median high-school enrollments already cited for these states. Although one can conceive of local situations where a marked private-school bias would affect enrollments in public schools, the *distributions for whole states are probably not influenced to any extraordinary degree*.

¹ Computed from data in *United States Bureau of Education Bulletin No. 60* (1923) and *Bulletin No. 7* (1924).

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Distribution of the population. The dependence of the size of high schools on the distribution of the population in a state will be considered in three ways; namely, as size is likely to be affected (1) by the gross number of cities of good size, (2) by the ratio between urban and rural population, and (3) by the distribution of the rural population. Resorting again to the four states being used for purposes of illustration, we find (Table XXI) that California and Massachusetts

TABLE XXI. FACTS DESCRIPTIVE OF THE DISTRIBUTION OF POPULATION (1920) AND MEDIAN HIGH-SCHOOL ENROLLMENTS (1917-1918) IN MONTANA, CALIFORNIA, MASSACHUSETTS, AND VIRGINIA

ITEM	MONTANA	CALIFORNIA	MASSACHUSETTS	VIRGINIA
Number of cities 25,000 and over (1920) . . .	1	12	27	7
Number of cities 10,000 to 25,000 (1920) . .	5	13	39 ¹	4
Number of cities 5000 to 10,000 (1920) . .	6	26	46 ²	10
Total number of cities 5000 and over (1920)	12	51	112	21
Percentage of urban population (1920) .	31.3	68.0	94.8	29.2
Percentage of rural population (1920) . . .	68.7	32.0	5.2	70.8
Average number of acres per farm (1920) . .	608.1	249.6	77.9	99.7
Number of acres of farm land per rural inhabitant (1920)	29.2	10.8	45.0	5.8
Median high-school enrollment (1917-1918)	37	128	131	32

¹ Most of these are towns.

² All of these are towns.

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have many more cities with populations of five thousand and over than have Montana and Virginia, anticipating for the first two states named more large high schools.

The ratios between urban and rural population also differ widely from state to state. The census classification, which computes as urban the population in cities of twenty-five hundred and over, has been followed here. In Montana less than a third of the population is urban, in California more than two thirds, in Massachusetts all but about 5 per cent, and in Virginia about three tenths. These proportions are seen to be strikingly reflected in the median high-school enrollments, although the correlation is not perfect. The average acreage of farms, as a measure of dispersal of population, appears also to be somewhat explanatory of the median enrollment, although the correlation is less notable than for ratios between urban and rural population. The chief exception is Virginia, where a relatively small size of farm does not bring up the median enrollment. Doubtless other influences intrude. The number of acres of farm land per rural inhabitant (following here again the census distinction between urban and rural), which is still another measure of distribution, shows a somewhat similar influence, but also admits the presence of other determinants. The fact that the acreage per rural inhabitant in Massachusetts is very high and still does not bring down the median enrollment is explained by the small proportion of rural population there. Race segregation and other determinants must enter in to offset the influence of the density of the rural population in Virginia.

On the whole the *distribution of the population is decisively influential* on the size of high schools.

State policies. In the report of a study involving a comparison of high schools in Oregon, Washington, and California, Proctor presents data setting forth their distribution by size of enrollment. From the distributions one may com-

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pute the percentages of the high schools in each of these states, which in 1915-1916 enrolled less than 50 pupils, from 50 to 199, and 200 or more (see Table XXII). The percentages for the first two states named differ less from each other than they do from the percentages for California. Although almost three fourths of the high schools of Oregon and almost two thirds of those in Washington enrolled less than 50 pupils each, the proportion for California was less than a fourth. On the other hand, while the first two states each had fewer than a tenth enrolling 200 or more pupils, California had well over a fourth of its high schools of this size. From a tabulation of the high schools in these three states by size of staff, Proctor finds that the percentages of the high schools with five teachers or less were Oregon, 85.5; Washington, 73.8; and California, 27.0.¹

TABLE XXII. NUMERICAL AND PERCENTAGE DISTRIBUTIONS BY SIZE OF ENROLLMENT OF HIGH SCHOOLS IN OREGON, WASHINGTON, AND CALIFORNIA ²

ENROLLMENT OF HIGH SCHOOLS	NUMBER			PER CENT		
	Oregon	Washington	California	Oregon	Washington	California
1-49	220	199	66	72.8	65.0	23.7
50-199 . . .	54	83	138	17.9	27.1	49.6
200 and over	28	24	74	9.3	7.8	26.6
<i>Total</i> . .	302	306	278	100.0	99.9	99.9

Here is a remarkable difference in distributions by size. Proctor accounts for it in the following words:³

The writer is satisfied that the difference between the high-school system of California and the high-school systems of the two states with which comparison is made, is not due to population,

¹ William M. Proctor (2), p. 148.

² Adaptation of data appearing in Table I in Proctor (2), p. 147.

³ Proctor (2), p. 152.

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area, resources, or general interest in secondary education. *The difference is primarily due to the policy of high-school administration that has obtained in California*¹ from the very beginning of secondary education in the state. . . . The policy of the University of California in accrediting high schools tended still further to promote the centralization of secondary education, since only four-year high schools having at least four teachers could find a place on the accredited list. . . .

In explanation of the distributions in the other states, he has the following to say:²

In Oregon and Washington the district plan of high-school administration and support prevails. . . . The great number of one and two-teacher high schools is the result of the lack of proper legislation, accompanied by financial inducements, looking to the consolidation of many contiguous elementary-school districts for high-school purposes.

Certain additional data for these three states along lines already presented for the four illustrative states (of which California is one) will assist us in appraising Proctor's belief that state policy is the primary determinant of the differences he disclosed (see Table XXIII). The number of cities of five thousand population and over is much larger for California than for either Oregon or Washington, and the percentage of urban population is also considerably larger, the difference in favor of California being that between approximately half and approximately two thirds of the total population. If what we have concluded above is correct, these differences could not fail to make for a different distribution, by enrollment, of high schools. However, the measures of dispersal of the rural population — that is, the average acreage of farms and the acreage of farm land per rural inhabitant — show that the three states are roughly homogeneous in this regard. California does have some advantage

¹ The italics are not Proctor's, but the present writer's.

² Proctor (2), p. 153.

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TABLE XXIII. FACTS DESCRIPTIVE OF THE DISTRIBUTION OF POPULATION (1920) AND MEDIAN HIGH-SCHOOL ENROLLMENTS (1917-1918) IN OREGON, WASHINGTON, AND CALIFORNIA

ITEM	OREGON	WASHINGTON	CALIFORNIA
Number of cities 25,000 and over (1920)	1	5	12
Number of cities 10,000 to 25,000 (1920)	3	4	13
Number of cities 5000 to 10,000 (1920)	8	7	26
Total number of cities 5000 and over (1920)	12	16	51
Percentage of urban population (1920)	49.9	55.2	68.0
Percentage of rural population (1920)	50.1	44.8	32.0
Average number of acres per farm (1920)	269.7	199.8	249.6
Number of acres of farm land per rural inhabitant (1920)	12.5	11.7	10.8
Median high-school enrollment (1917-1918)	37	41	128

toward large high-school enrollment induced by her larger proportionate urban population, but it is not so large as to account for the striking contrast in distributions of high schools by size. There is left a large difference for which divergence in state policies must be credited. In view of the approximation to homogeneity of distribution of the rural population, as well as something like homogeneity of climate fostering consolidation, the distributions of high schools by size for Oregon and Washington could be brought much nearer those for California were their policies modified to that end.

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A summary of the determinants. Of the hypothetical determinants of the size of high schools listed at the outset of the present section, all are influential at times and in particular localities. Sex segregation (because of its infrequent introduction in public high schools) and the competition of private schools (because this is gradually diminishing) are in general not significantly operative where state areas are concerned. Those left as being frequently and notably influential are the degree of popularization of secondary education, race segregation, the distribution of the population, and state policies. Since variation in the first factor named is not so wide in range as some of the others, it is perhaps not quite so weighty in influence as the other three. In an important sense, moreover, it may be looked upon as resulting from race segregation and even from other determinants in the list. As with influences everywhere, these determinants seldom, if ever, operate singly in any secondary-school situation; such a situation is almost universally the result of a combination of causes.

Further illustration of the operation of these determinants of the size of high schools is afforded by examining the accompanying data showing the median enrollments and the range of enrollments of the middle 50 per cent of high schools in each state and in the United States (Fig. 38). The reader should find it profitable to conjecture on the operation of the determinants in some state or states of his acquaintance. Peculiar interest may attach to those at or near the top and bottom of the list. Rhode Island tends to have the largest high schools; doubtless concentration of population in a small state goes far to account for this. Utah is encouraged by a county high-school system, but also by some degree of concentration of population (48 per cent urban). New Jersey's favorable position is likewise influenced by concentration of population (78.7 per cent urban) and by a policy of centralization. The distribution in North Dakota (at the

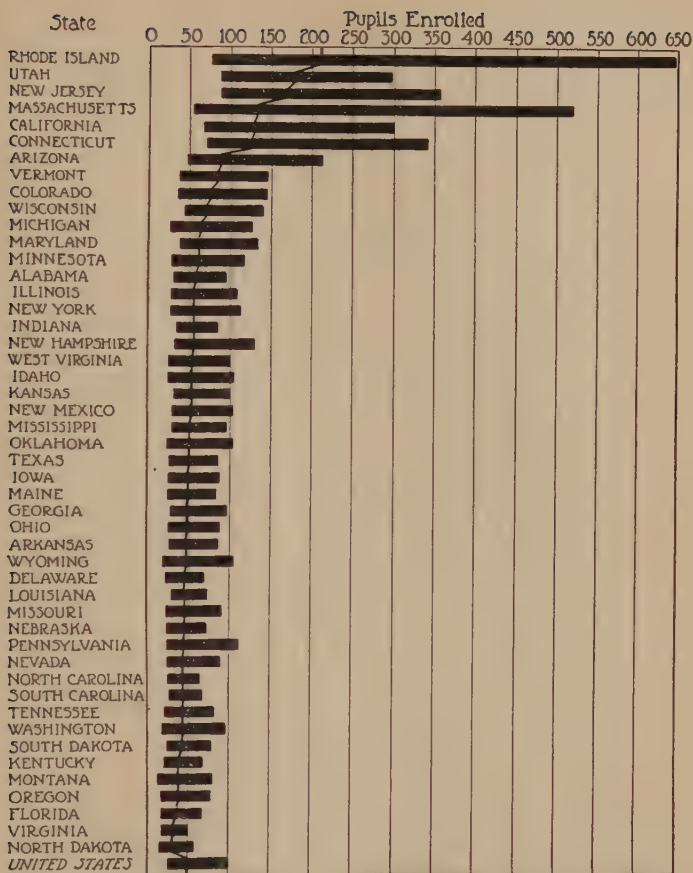


FIG. 38. Enrollments of median high schools and zones including the middle half of high schools by size of enrollment (1917-1918) for each state and the United States. (Bars represent range for middle half of high schools; the irregular vertical line locates the medians) (From (3), p. 23, Fig. 3)

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other extremity) is handicapped by a scattered population (13.7 per cent urban) with large farms (averaging 466.1 acres), and by a small-district system that will be difficult to overcome because of the rigors of the winter climate. Florida's situation is not unlike that of Virginia as already considered.

Significance for policy and practice. In the materials of this chapter we have found large numbers of small high schools. They are to be found in all sections of the country. It is difficult for those who have not had experience as pupils or as teachers or as administrators in these undersized schools to appreciate their limitations and their inefficiencies in such respects as the restricted range of their offering of subjects, their inexperienced and often poorly trained teachers struggling with subjects of which their knowledge may be meager, and the lack of emulation caused by negligible class enrollments. They are, moreover (as will be seen in Chapters VIII and XIX), costly in instruction as compared with larger schools. No one in critical contact with such high schools will question the desirability of keeping their number as few as possible. Where it is inadvisable to eliminate them, every possible effort should be made to render them measurably efficient.

Another way of considering the most influential determinants of the size of high schools, as already summarized, is with respect to modifying their operation so as to reduce the proportion of little schools. Scrutinized in this way, one finds that a single determinant only, state policies, is amenable to early and substantial modification. The extent of popularization is likely to enlarge for some time to come, but could not respond to stimulation in a way adequate to reduce rapidly the proportion of small schools. Eventually, however, it will affect the distribution. Race segregation where operative will not soon be overcome, if ever. Changes in the distribution of population must take their own time. We must therefore have recourse to state policies of unionization and consolida-

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tion to effect improvement. Vigorous and persistent efforts must be made as well to bring such small schools as must be established to as high a level of efficiency as possible. Chapter VIII is in large part addressed to these problems.

QUESTIONS AND PROBLEMS

1. State your conjectures as to the factors most influential in determining the median high-school enrollment in states near but not at the extremes shown in Fig. 38; for example, Connecticut, Arizona, Vermont, Kentucky, and South Dakota.

2. Are the data presented in Fig. 49, Chapter X, in agreement with the inference that competition of private schools is not a highly important determinant of the size of high schools for whole states?

3. Cite instances from your personal observation of small communities in which the size of high-school enrollment was reduced by the presence of a private secondary school.

4. In what respects are the materials of this chapter basic to junior-high-school and junior-college reorganization, the rural-school problem, and vocational education, which are the concerns of the next three chapters?

5. What steps might be taken to bring about modification of state policies so as to make for high schools with larger enrollments?

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2. PROCTOR, WILLIAM M. "Union versus Single-District High Schools," *Educational Administration and Supervision* (March, 1918), Vol. IV, pp. 141-154.
3. *Statistics of Public High Schools, 1917-1918*, *United States Bureau of Education Bulletin No. 19* (1920), pp. 15-29.
4. *Statistics of Public High Schools, 1921-1922*, *United States Bureau of Education Bulletin No. 7*, 1924. 69 pp.

VII

SECONDARY-SCHOOL ORGANIZATION: JUNIOR HIGH SCHOOL AND JUNIOR COLLEGE

I. JUNIOR-HIGH-SCHOOL REORGANIZATION

Discussion of the two movements already foreshadowed. At several points in foregoing portions of this book the more extended treatment now accorded the junior-high-school and junior-college movements has been foreshadowed. Near the close of Chapter I, during the canvass of the historical types of secondary schools, their downward and upward extension was seen as the culmination of the organization of American secondary education. The recent growth and the current scope of both movements were set down. Near the close of Chapter II junior-high-school reorganization was recommended as providing the recognition of the pronounced changes, both physical and psychic, during adolescence. The same reorganization was recommended in Chapter III as well suited to the task of guidance necessary for retention of pupils, the chapter on aims (IV) found some purposes more or less distinctive of the junior-high-school period, and the chapter on relationships to elementary and collegiate education (V) assigned places to both the junior high school and the junior college. Their apparently natural right to be included in the system of secondary education justifies the space here allotted to their special consideration.

The special purposes or "peculiar functions" of the junior high school. As any new social institution makes its appearance over the social horizon its friends are found to make certain "claims" or to present certain "arguments" in its

behalf. This has been true for educational institutions such as the junior high school and the junior college. Compilation and subsequent evaluative scrutiny of these claims warrants regarding as *peculiar functions* those claims which appear to stand the test as working or tentative distinctive purposes. The peculiar functions of the lower of the two units being considered here—the junior high school, or intermediate school—have been set forth elsewhere by the writer¹ and are as follows:

1. Realizing a democratic school system through
 - a. Retention of pupils.
 - b. Economy of time.
 - c. Recognition of individual differences.
 - d. Exploration and guidance.
 - e. Provision of the beginnings of vocational education.
2. Recognizing the nature of the child at adolescence.
3. Providing the conditions for better teaching.
4. Securing better scholarship.
5. Improving the disciplinary situation and the socializing opportunities.

The meaning of most of these functions can be made somewhat clearer by a word of explanation. Briefly defined, realizing a democratic school system means here the equalization of educational opportunities. This is to be accomplished through performing the subfunctions *a*, *b*, *c*, *d*, and *e*. That is to say, in order to equalize educational opportunities, *a*, many pupils who are eliminated in the traditional (or 8-4) plan must be induced, through the educational reorganization effected by the junior high school, to extend their educational careers over a longer period; *b*, time must be economized for all, so that larger proportions of the total population may make contact with the materials of a more functional education than is provided by the extension and repetition of the common branches too characteristic of the

¹ Koos (8), chaps. ii and iii.

upper grades of the eight-year elementary school; *c*, the striking variation of pupils in capacity, ability, interest, and need must be taken care of better than can be done under the restrictions of the elementary school; *d*, before this may be done we must canvass for these differences, assist the pupil in exploring on his own account, and guide him in the selection of further education and of his occupation; and *e*, we must provide the beginnings of vocational education for over-age pupils and for others who are destined to drop out early. The extent of vocational education presumed by this subfunction is that which would be a by-product of performing adequately the subfunction immediately preceding (exploration for guidance), with such additional opportunity for specialized training as is sometimes shown to be necessary by a survey of the proportion of over-age children eliminated during the later elementary years, and the occupations into which they tend to go or might be trained to enter. In most communities this would mean no occupational training beyond that necessary for exploration. In occasional localities some beginning of real training for specialization might be called for, especially in the eighth and ninth grades.

The particular phases of child nature (function 2) which should be kept in mind in planning education in the grades concerned are those resulting from the pronounced changes found in Chapter II to be taking place during the early years of adolescence. The significance of the expression "providing the conditions for better teaching" (function 3) is sufficiently apparent without pointing out that those who uphold it as an advantage refer to the hopelessness of providing effective teaching in the seventh and eighth grades under conditions fixed by the traditional organization, with its unspecialized teaching and oftentimes poorly trained teachers. "Securing better scholarship" (function 4) is understood to signify securing a better scholastic response than is obtained from many pupils unmotivated in the unreorganized school.

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Function 5 assumes the often unsatisfactory character of the disciplinary situation in the typical upper-grade classroom, with its one-teacher regimen, and looks to the junior high school to improve this and in many ways to enhance the socializing forces of our educational system.

Relative importance of the peculiar functions. These distinctive purposes of the junior high school are not accepted by educational workers as being of equal importance. This is seen in the results of two ballotings secured from one hundred and thirty teachers, principals, and superintendents who had had an opportunity to give the purposes and the new institution some systematic consideration, and many of whom had responsibilities of one kind or another for junior high schools.¹ The method of balloting was the very simple one of ranking the peculiar functions in the order of the desirability or necessity of their performance in junior high-school grades and assigning the rank "1" to the function considered most important, "2" to the next most important, and so on. The first balloting concerned the five major functions in the foregoing list. In this instance the judges were requested to take for granted that the first function — realizing a democratic school system — is explained by its five subfunctions and therefore includes them. The average ranks² resulting from these ballots were 1.4, 2.1, 3.4, 4.4, and 3.7 for the five functions as listed. The composite opinion of the judges therefore makes the order of importance the following: first, realizing a democratic school system; second, recognizing the nature of the child at adolescence; third, providing the conditions for better teaching; fourth, improv-

¹ The materials are cited from Koos (10).

² The method of computing the average rank may require illustration. Of the 130 judges, 96 assigned rank 1 to the first peculiar function, realizing a democratic school system; 24, rank 2; 5, rank 3; 2, rank 4; and 3, rank 5. A total of ranks is first obtained by multiplying each rank by the number of times it was assigned and adding these products. The sum of 1×96 , 2×24 , 3×5 , 4×2 , and 5×3 is 182. The average rank reported for this function, 1.4, is merely the quotient obtained by dividing this total of ranks by 130, the number of judges.

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ing the disciplinary situation and socializing opportunities; fifth, securing better scholarship. It is worth noting that these results interchanged the positions of functions 4 and 5 from what they were in the original list, and that otherwise the ranking leaves them in the order in which they are named.

The second method of balloting required numbering the subfunctions *a, b, c, d,* and *e* and the functions 2, 3, 4, and 5 (nine functions in all) in the order of their importance in the junior high school. The comprehensive function (function 1), was omitted from this balloting, being adequately represented through its subfunctions. When the number of functions is increased by making the five subdivisions of function 1 shift for themselves in the competition, the average ranks are as shown in Table XXIV. The ranking places the nine functions in the following order of importance: first, recognizing individual differences; second, recognizing the nature of the child at adolescence; third, retaining pupils; fourth, economizing time; fifth, exploring and guiding; sixth, providing the conditions for better teaching; seventh, improving the disciplinary situation and socializing opportunities; eighth, providing the beginnings of vocational education, and ninth, securing better scholarship.

An interesting comparison is afforded by bringing together the results of this balloting and of a canvass of educational literature dealing with the junior high school (Table XXIV). This literature is that referred to elsewhere¹ by the writer and includes public-school documents, usually written by principals or superintendents, and articles and portions of books by "other educational leaders." Although the two methods of arriving at the ranks compared have little in common, there is a conspicuous similarity in the orders of importance found. The ranks actually coincide in only one instance, but for seven of the remaining functions there is disagreement of but one or two steps. There is very large

¹ Koos (8), chap. ii.

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disparity in the case of one function only, that of recognizing the nature of the child at adolescence; the judges place it second in importance, whereas frequency of mention in the literature places it near the foot of the list.

TABLE XXIV. COMPARISON OF RANKS ASSIGNED EACH OF NINE PECULIAR FUNCTIONS OF THE JUNIOR HIGH SCHOOL (1) BY THE COMPOSITE JUDGMENTS OF EDUCATIONAL WORKERS AND (2) BY THE FREQUENCY OF MENTION IN A LARGE BODY OF EDUCATIONAL LITERATURE DEALING WITH THE JUNIOR HIGH SCHOOL

PECULIAR FUNCTIONS	EDUCATIONAL WORKERS (124 JUDGES)		EDUCATIONAL LITERATURE	
	Average Rank	Order of Importance from Average Rank	Frequency of Mention	Order of Importance from Frequency of Mention
1. <i>a.</i> Retention of pupils . . .	3.2	3	40	1
<i>b.</i> Economy of time	4.7	4	36	2
<i>c.</i> Recognition of individual differences	2.7	1	35	3
<i>d.</i> Exploration and guidance	5.0	5	27	6
<i>e.</i> Provision of beginnings of vocational education .	6.6	8	26	7
2. Recognizing the nature of the child at adolescence	3.1	2	22	8
3. Providing the conditions for better teaching	5.9	6	31	4
4. Securing superior scholarship	7.5	9	13	9
5. Improving the disciplinary situation and socializing opportunities	6.3	7	28	5

The reader should be aware of the danger of concluding that if a function is given a relatively low ranking by the compounded judgment, it is therefore unimportant. The method of balloting used secures a judgment on *relative* importance only. Many of the judges especially mentioned the fact that low ranks assigned by them signified *less* importance rather than *unimportance*. A fact somewhat related deserves men-

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tion: some judges gave a relatively low rank to certain categories because such functions would to a greater or less extent result from the performance of other functions, although their achievement is to be regarded as essential in reorganization. This consideration affected chiefly the ranking of these items: retention of pupils, securing better scholarship, and improving the disciplinary situation and socializing opportunities.

The junior high school as a period of transition and guidance. It seems desirable to call particular attention to two categories of function looming to increasing importance in literature and practice in recent years, both of which emphasize the rôle of the junior high school as a unit of transition and of guidance. These are recognized in the list of functions already presented, the first implicitly in function 1, *a*, and the second explicitly in 1, *d*. The function of retention takes cognizance of the need of "bridging the gap" between the eighth and the ninth grade in the conventional school system — a gap not merely physical, but also profoundly curricular and organizational, as may be observed by anyone who compares the content of courses and regimen of well-conducted junior high schools with the upper grades of the traditional elementary school. This transitional purpose is emphasized in Fig. 39 and in the following quotation from an article by Glass,¹ who has done a great deal to secure its recognition in the work of junior-high-school reorganization:

The chief indictment of an elementary school of eight years and a high school of four years was the lack of articulation between the two. In the long period of twelve years of public-school education it was inevitable that distinct aims should control the school at either extreme. But the distinctions were not restricted to the extremes; they grew to permeate the whole period of each unit. There was no intermediate school of transition between elementary and secondary education. . . .

¹Glass (5), p. 19.

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Some constructive plan of reorganization . . . was imperative. A new school unit of gradual transition between elementary and secondary education was created. . . . It readjusted the twelve years of the school system into an articulated whole. . . .

The special importance of the performance of the guidance function in the junior high school has already been emphasized in the concluding section of Chapter IV. This was done

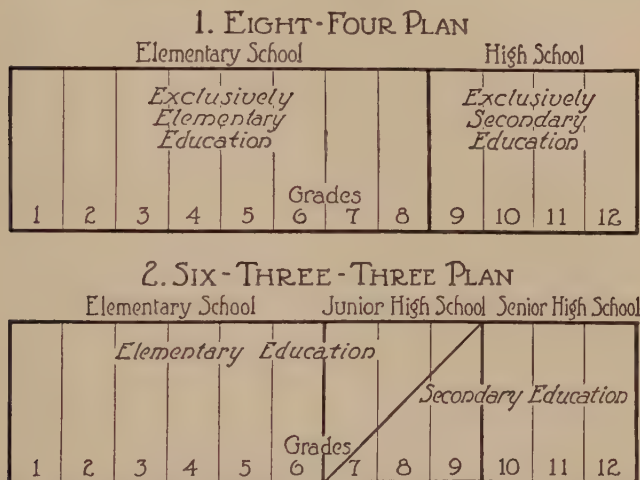


FIG. 39. Comparison of eight-four and six-three-three organizations of the school system. (Adaptation of Charts 1 and 2 in Glass (5), p. 19)

in part by an extract from the article by Glass from which quotation has just been made concerning the junior high school in its transitional service in the school system.

It is not that these two categories of function, transition and guidance (which, it has not yet been pointed out, have important interrelationships), should be emphasized to the exclusion of the other important functions as summarized: it is merely that they should be adequately recognized in the program of reorganization.

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Relationship to the aims and functions of secondary education.

The relation of functions to aims has already been stated in Chapter IV. It was pointed out there that the functions are the proximate purposes of education, being in the nature of conditions under which the process of education must go forward the better to achieve the relatively ultimate purposes, or aims. The special purposes of the junior high school, as these have been summarized, are functions in the same sense. Moreover, being the functions of the junior high school, a part of the secondary-school system, they are simultaneously functions of secondary education and should be designed to further the aims of secondary education. This relationship should account for what at first thought may seem like a surprisingly large overlapping of these peculiar functions of the junior high school with the functions of secondary education as these were explained and summarized in the chapter referred to (see page 167). The chief difference is the greater length of the junior-high-school list. This excess is largely accounted for by the fact that such functions as economy of time, providing the conditions of better teaching (which calls particularly for greater specialization and more extended training of teachers), and improving the disciplinary situation and socializing opportunities are directed specifically to the correction of defects in the upper grades of the eight-year elementary school.

Features of junior-high-school reorganization. The treatment of an educational institution such as the junior high school may well be organized by division into two main parts, the first concerned with the distinctive *purposes*, as these have been summarized, and the second with the *means* introduced to achieve the purposes. The second may be designated as the *features of the junior high school*. The features the introduction of which has become rather generally identified with junior-high-school reorganization are the number of grades included, admission requirements to the

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junior high school, the program of studies, departmentalization of instruction, a modified plan of promotion, reform in methods of teaching, an advisory system, an improved instructional staff, an organization of social life in the school, and better facilities in the way of building and equipment than are ordinarily found in elementary schools. If grouping by ability is thought of as a feature distinct from the program of studies, this should be added to the foregoing list. Because of the all-important relationship between functions and features — in effect, no less than the dependence of ends on means — each of the features will be briefly considered.

Number of grades included. There is wide variation in practice as to the grades included in the junior high school, or intermediate school, but the two most frequent types are two-year and three-year units, with the three-year unit progressing toward ascendancy. In the twelve-grade systems in operation in most states of the Union, the two-year unit thus includes the seventh and eighth grades, and the three-year unit the seventh, eighth, and ninth grades as seen in Glass's chart (Fig. 39). In certain Southern states with eleven-year systems the corresponding units include, respectively, the sixth and seventh grades and the sixth, seventh, and eighth grades, but there are deviations from these groupings.

As our knowledge of practices in reorganization grows the conviction gains ground that the two-year unit, which does not reach into the conventional four-year high-school organization, is much less provocative of the real reorganization desirable than is the three-year unit. There is an increasing body of information on the content of courses in important subjects of study which shows that the introduction of the two-year unit usually falls far short of the reforms hoped for. This may be illustrated by citation of results of an analysis of the content of courses in mathematics as this is represented by the textbooks used in a number of school systems reporting to be operating on the 8-4, 6-2-4, and 6-3-3 plans of organi-

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TABLE XXV. PERCENTAGES OF PAGE SPACE IN THE AVERAGE COURSES IN MATHEMATICS DEVOTED TO MATERIAL FROM VARIOUS FIELDS IN THE SEVENTH AND EIGHTH GRADES IN THREE TYPES OF SCHOOL SYSTEMS¹

NATURE OF MATERIAL	GRADE AND PLAN OF ORGANIZATION					
	Seventh			Eighth		
	8-4	6-2-4	6-3-3	8-4	6-2-4	6-3-3
Arithmetic	86.5	76.7	67.7	78.7	76.3	68.5
Geometry	11.4	18.1	27.6	13.9	13.2	14.4
Algebra	1.1	2.8	1.3	6.0	9.2	10.3
Statistics	1.2	2.7	3.6	1.5	1.0	5.2
Trigonometry	—	—	—	0.2	—	1.6
<i>Total</i>	100.2	100.3	100.2	100.3	99.7	100.0

zation (see Table XXV). The percentage of textual content devoted to arithmetic is seen to be largest in the seventh and eighth grades of schools following the old organization and smallest in the grades of the 6-3-3 plan, with the 6-2-4 plan finding place somewhere between. Reciprocally, the percentages of content classified as geometry (usually constructive and intuitive, not demonstrational) in the seventh grade and as algebra in the eighth are smallest in the 8-4 and largest in the 6-3-3 plans, with the 6-2-4 schools lying between the extremes. There are also analogous though smaller differences in statistical content in the seventh grade, whereas the differences as to statistics and trigonometry in the eighth grade are favorable to the 6-3-3 plan and unfavorable to the 6-2-4 plan. It may be inferred from illustrative evidence such as this that if reorganization is to mean real modification in the curriculum and elsewhere (and if there is no intent to effect real changes, why take any steps at all?), this will be more encouraged by a junior unit at least three years in length than by the two-year unit. The two-year junior high school

¹ From Table XVII in Alma C. Gaardsmoe's "Present Status of Mathematics in Grades VII, VIII, and IX," a master's thesis on file in the Graduate School of the University of Minnesota (1925).

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may, nevertheless, sometimes be justified as one step toward more thoroughgoing reorganization, it being understood that the step to a three-year plan is shortly to follow.

The junior-high-school program of studies. The curriculum, or program of studies, is always one of the most important means — the most important after the teaching staff — of effecting educational reform. It is no less important, certainly, in junior-high-school reorganization than in any other. The place for treatment of this problem is in a later chapter,¹ but its bearing on an understanding of the reorganized secondary school which it is the aim of this chapter to give makes it desirable to deal with the problem briefly and in a general way here. This can in part be accomplished by a further quotation from Glass:²

... The junior-high-school program of studies should be a resultant of several forces. There are three currents which find their confluence in the junior high school. One comes from the elementary school, a second from the senior high school, and the third from vocations and society. Accordingly, the program of studies is made up, in part, of a continuation of the elementary school's single curriculum, but a review, that is, a new view, of these courses in their articulated relation to secondary courses; in part, a pre-view of secondary courses in "their simpler aspects"; in part, a prevocational content from industry, commerce, and the home which comprise the fine and practical arts and some electives; and finally, in part also, a liberal amount of social science materials and social and civic activities of junior citizenship that early adolescents may find their self-conscious adjustment.

In further description of the programs of study in junior high schools it is to be said that they (1) usually offer opportunities for some extent of election of subjects as early as the seventh and eighth grades (more often in the eighth) and (2) often also make provision in the same grades for some

¹ Chapter XIV.

² Glass (5), p. 21.

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extent of differentiation in terms of interests, ability, and needs of pupils. This is one or two years earlier than such opportunities are afforded in the 8-4 plan of organization. The subjects opened up to election are the foreign languages (Latin, French, and Spanish), the practical and fine arts (manual training, home economics, music, and graphic and related arts), and certain commercial subjects. The usual names borne by the curricula, or "courses," when these are provided are "academic," "general," "commercial," "practical-arts," "industrial," and "home-economics."¹ The relative merits of the several practices will be considered in Chapter XIV; but the opinion may be expressed here that in general the modified programs of studies, inclusive of the grouping by ability often introduced, are much better suited to the pupils represented and to the performance of the peculiar functions than is the conventional offering in these grades.

Other features of the junior high school. Only the briefest treatment can be given the other features of junior-high-school reorganization. *Requirements for admission* to the junior high school are not uncommonly less rigid than are requirements for promotion from the sixth to the seventh grade, flexibility being in the direction of admitting over-age children who may not have completed satisfactorily all the work of the preceding grades. It is argued that the facilities of the junior high school can be better adapted to such children than the more restricted facilities of the upper grades of the abbreviated elementary school, and that in addition much is to be gained from associating these children with others nearer them in age. A similar flexibility of *promotion* is attained *within* the junior high school in a number of ways, the device most frequently found being promotion by subject, either complete or in modified form. There are varying degrees of *departmentalization* of instruction, but it may be said that this specialization is carried farther in junior high schools

¹ Compare J. Harvey Rodgers (15). •

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than in departmentalized upper grades of eight-year elementary schools. The question may be raised whether it is not sometimes carried too far, especially for seventh-grade pupils. The modifications in *method* found associated with the new organization are supervised study, socialization, and the project and problem. Exploration and guidance being a significant function of the new unit, many junior high schools have made beginnings toward *advisory systems*, sometimes administered by the principal, sometimes by counselors or other special officers assigned to the task, sometimes through home-room groupings, and again through the coöperation of all these agencies and others. *Extra-curricular phases* of school life, including *pupil participation in school control*, have a much larger place than in corresponding grades of the older plan. All the readjustments which the new unit has brought hastily into the grades are obviously unattainable without a *staff of teachers* imbued with the junior-high-school idea. Increasingly there has been selection of those more suited by training and experience for the work; and more recently, teacher-training institutions have been providing courses and curricula for the preparation of junior-high-school teachers. Finally, the enriched program of studies could not go forward in the restricted accommodations of the elementary-school buildings, and the movement has ushered in junior-high-school *plants* with space and equipment for science, practical and industrial arts for both sexes, commercial training, music and the other arts, training in health, gymnasiums, auditorium, library, and the social and extra-curricular program.

The junior high school and the educational units above and below. This brief treatment of the junior high school may well be concluded by referring to certain effects it should have on the institutions immediately above and below; that is, the senior high school and the elementary school. The influences on the senior high school may be sufficiently inferred from what has been said near the close of Chapter IV

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on the aims and functions of junior and senior high-school periods. Without repeating the discussion at length it may be restated that in their chief differences as to aim and function they are complementary: the senior high school should to some extent be given over to occupational specialization, inclusive of college preparation for those who proceed to higher levels of training, and the junior high school must stress exploration and guidance somewhat more than the upper unit. It has been pointed out that one of the reasons for the curricular confusion in the four-year high school is that we have been attempting to achieve both purposes simultaneously for a given student. If those responsible for the secondary schools were completely aware of the essential unity of the two periods, as well as of the partial distinction just mentioned, articulation and coördination of this part of the system would be materially expedited.

For the most part, the relations between junior-high-school and elementary education as suggested in a canvass of aims and functions may be regarded as comprehended by the materials of Chapter V, in part of which a comparison was essayed of the purposes of secondary and elementary education. In addition it is appropriate to reëmphasize the transitional relationships of the junior unit.

Beyond this it is pertinent to mention some of the effects of junior-high-school reorganization on the elementary school.¹ It has been feared by some that the effect of introducing the junior unit would be detrimental to our fundamental school. On the contrary, the influences are beneficial. The usual focus of attention on the upper grades of the long eight-year elementary-school period has led to a too frequent neglect of the interests of children in the middle grades — the fourth, fifth, and sixth. This neglect has been accentuated by a similar concentration of attention on the primary grades. Illustrations of trends of discrimination may be found in

¹ These are set forth at greater length in Koos (9).

the emphasis on primary and upper-grade methodology in teacher-training courses; a rather common encouragement to the vivid and forceful personalities to enter upon teaching in the favored grades; the more frequent provision of supervision on primary and upper-grade levels; and even better salaries for teachers in the two ends of the eight-year elementary school. Thus the intermediate grades became what may be termed the umbrageous region of the school system. Instituting the junior high school is doing a great deal to throw light into this shaded area. It is aiding the discovery of the middle grades.

Another advantage is the much more nearly homogenous social group remaining in the six-year elementary school. The pupils are, with few exceptions, preadolescents. Homogeneity is enhanced by the frequent practice, already reported, of promoting the over-age to the junior high school. From the new upper grades — the fifth and the sixth — must be recruited the new pupil leaders. This situation is conducive to training in responsibility, social and otherwise, and to the development of a school spirit in the new upper grades and throughout the six-year school to an extent impossible in a situation where children who are adolescents monopolize the functions of leadership and where the interests of the majority in the two upper grades are veering from those of the preadolescent. Removing the seventh and eighth grades also encourages the better placing of responsibility for giving definite kinds and amounts of training in the intermediate grades by the time the pupil enters the new secondary-school period. Other advantages for which much could be said are that the tasks of the elementary-school principal are simplified and that such features of the junior high school as are found appropriate may be borrowed for the middle grades; for example, some measure of departmentalization, some measure of flexibility in the plan of promotion, and better-trained teachers.

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II. THE JUNIOR-COLLEGE MOVEMENT ¹

The isthmian function of the junior college. The junior college, like the junior high school, has had a host of claims made in its behalf. These in turn, in so far as acceptable, may be regarded as the analogues of the distinctive purposes, or "peculiar functions," of the junior high school. For the sake of brevity and simplification they will be considered under four main heads: (1) the *isthmian* function, (2) the *democratizing* function, (3) the *socializing and conserving* function, and (4) the *reorganizing* function.

Extended inquiry along several lines induces the conviction that the strong junior college will be able to qualify on the claim that it will do satisfactorily the first two years of college and university work, that is, perform the isthmian function. Although the typical total offering in the new institutions does not yet compare favorably with the range of courses available to freshmen and sophomores in colleges of liberal arts, it does compare with the work actually taken by any considerable proportion of such students, since this work is much narrower in scope than the full range of courses listed as open to lower classmen. Moreover, a check of these junior-college offerings against the work required in two pre-professional years in law, medicine, dentistry, business, education, and so on, and in the first half of professional curricula usually beginning with the first college year (such as engineering, agriculture, and home economics), promises that a standardization of these curricula will make it possible for a proper development of junior colleges to take care of the first two years' needs of those who contemplate entrance upon professional careers. This conviction has the support also of the results of a comparison of junior-college teachers on the one hand with those giving instruction to lower classmen in colleges and universities on the other, as to periods of graduate preparation,

¹ This treatment of the junior college is based on Koos (26), chaps. ii-ix.

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experience, teaching load, actual work of instruction in the classroom, remuneration, and the like. Although the instructional staff of the junior college lags behind that of other higher institutions in some of these respects, nevertheless, in view of the newness of the movement, its present instructional situation is prophetic of adequacy as the junior college grows to maturity. Further evidence that the junior college will be able to perform this function of giving satisfactorily the first two years of college and university work is provided in the fact that two comparable groups of students, the one having done two years of work in junior colleges and the other in a state university, have been found to have well-nigh equivalent records during the third year of attendance in higher schools.

The democratizing function. Under the general head of the function of democratizing educational opportunities on the level of the first two college years have been placed such claims as "*rounding out*" *in the junior college the education of students not going on, affording training for semi-professions, and popularizing higher education through lowering its cost and bringing it nearer the home of the student.* These expand the scope of the new unit far beyond the first function, which, if the only one accepted, would make of the junior college little more than an isthmus connecting the mainland of elementary and high-school education with the peninsula of professional and advanced academic education. Certainly the interests of those who cannot or should not go on to higher levels of training will be better cared for in institutions in which these junior-college years are terminal than in those where, in the nature of things, they are looked upon as preliminary to and selective for higher levels and where the focus of attention is on curricula four or more years in length. From the standpoint of the right of the less capable students to complete college and university curricula four to eight years in length, the large-scale elimination now characteristic of our higher institutions is not entirely without justification; but when

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we confront it with our American aspirations for democracy of educational opportunity, this elimination, with its accompanying ruthless disruptions of life plans, appears intolerable, especially in view of the fact that few of those eliminated, if any, are lower in mental caliber than the mid-point of our literate white draft during the World War. Without reorganization along junior-college lines the present rising tide of popular education is certain to increase the extent of this elimination and hence to swell the proportion of young people taking parts of truncated curricula; for example, loose ends of elementary foreign languages and supra-arithmetical mathematics prescribed as preliminary to further education to which the students forced out do not attain.

For similar reasons we cannot expect our colleges and universities to develop opportunities for education in the *semi-professions*; that is, for occupations the period of training for which will terminate with junior-college years. Nor could students in large numbers in such higher institutions be induced to enter upon such curricula if offered, because of the loss of caste in aspiring to less than the highest available end aimed at by other students in the same institution. This would be true no matter how appropriate such training might be to the individual or how serviceable to society at large. When sufficient allowance is made for the fact that in these earlier stages of growth of the movement junior-college authorities, like the high-school authorities of a quarter of a century ago, are endeavoring first to perform satisfactorily the isthmian function, we are warranted in characterizing the beginnings made along semi-professional lines as genuinely propitious, even though these beginnings are not now very extensive.

The claim of popularization of these years of higher education through lower cost and nearness to the home of the student is well supported by the strikingly lessened expense

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of attendance in cases where students live at home; the increased proportions of the populations enrolled in the first two years of college work in communities with local higher institutions; and — most critical test of all — the actually larger proportions, as compared with other higher institutions, of pupils from lower economic levels who attend the public junior college.

The socializing and conserving influences. The grounds for the faith that the junior college exercises conserving and socializing influences in ways now impossible in larger higher institutions are to be found (1) in the younger age at which parents are willing to entrust their sons and daughters to the former because they can live at home while in attendance, (2) in the smaller total enrollments tending to prevent the "depersonalization" of the educational process now far too characteristic of the larger schools, and (3) in the better opportunities for laboratory practice in leadership in extra-curricular activities made possible in the junior college by the absence of upper classmen who, in the higher institutions, tend to monopolize the functions of leaders.

The reorganizing function. 1. The far-reaching reorganization which is disclosed by any thoroughgoing investigation of tendencies in higher education during the past century has come upon our secondary schools, colleges, and universities so gradually and imperceptibly that there is little general consciousness of its profound character and of the timeliness of the advent of the junior college.

a. To illustrate one significant fact of change, *the advancing age of the college entrant*, it may be said that during the half century from 1830 to 1880 the average age of Harvard freshmen increased by fully two years — the period covered by the junior college. There were comparable increases in age in other New England colleges.

b. During three quarters of a century *the scope of admission requirements expanded* from the approximate equivalent of

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seven or eight present-day units to twice the number, or by two years of work. This is in harmony with the advance in age.

c. This increment was largely inherited from the college curriculum, in which *subjects and courses experienced a steady depression* to lower and lower levels (see Table XXVI). For instance, beginning algebra and geometry, prescribed for college freshmen until long past the middle of the last century, became materials of instruction in the high school; and general chemistry and physics, formerly required of college juniors and seniors, are now available, in enhanced rather than diluted form, to students of the same classification in the lower school. The only subjects not depressed were Latin

TABLE XXVI.¹ YEARS IN WHICH CERTAIN COLLEGE SUBJECTS WERE GIVEN IN AMHERST, WILLIAMS, AND YALE AT INTERVALS FROM 1825 TO 1920 ²

SUBJECT	DATE OF ISSUE OF CATALOGUE					
	1825	1845	1865	1885	1905	1920
Homer	1, 3	1, 1, 1	1, 1, 1	1, 1, 1	1, 1, 1	1, 1, 1
Beginning French	3	2, 3, 3	2, 3, 3	2, 3	1, 1, 1	1, 1, 1
English grammar	1, 1	1	—	—	—	—
English literature	—	—	3, 4, 4	2, 3, 4	1, 2, 2	1, 1, 2
Arithmetic	1, 1, 1	—	—	—	—	—
Elementary algebra	1, 1, 1	1, 1, 1	1, 1	1	—	—
Trigonometry	2, 2, 2	2, 2, 2	1, 1, 2	1, 1, 1	1, 1, 1	1, 1, 1
Analytic geometry	—	3	1, 2, 2	2, 2	1, 2, 2	1, 1, 1
Physics, or natural philosophy	3, 3	3, 3, 3	2, 3, 3	3, 3	1, 2, 2	1, 1, 2
General chemistry	3, 4	3, 3, 4	3, 3, 3	2, 2, 4	1, 1, 2	1, 1, 2
Zoölogy, or natural history	4	3, 4, 4	3, 3, 4	2, 3, 3	2, 2	2
Geology	4	4, 4	3, 4, 4	3, 4, 4	3, 3, 3	2, 3
Mental philosophy, or psychology	4, 4	4, 4, 4	4, 4, 4	3, 4	2, 3, 3	2, 2, 3
Economics (political economy)	4	3, 4, 4	3, 4, 4	3, 4, 4	2, 3, 3	2, 2, 3

¹ Koos, "The Trend of Reorganization in Higher Education," *School Review* (October, 1924), Vol. XXXII, p. 581, Table II.

² The figure "1" means that the subject was listed for freshmen; the figure "2" means that the subject was listed for sophomores, and so on.

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and Greek. The downward shift is so notable as at first to seem hardly credible. What a sound basis they have who refer to the high school as the "people's college"!

d. *The organization of college curricula* has undergone far-reaching modification in harmony with the changes already noted. Fully prescribed curricula were the rule a hundred years ago. Along in the fifties and sixties came some measure of option, which increased in proportion until toward the end of the nineteenth century, when everything was elective excepting certain courses in freshman and sophomore years.

e. Out of this curricular chaos emerged the *major system* operative in junior and senior years and now all but universal in our colleges. And whatever may be the intentions of college authorities in prescribing the major, it is usually selected by the student in terms of his occupational plans.

f. But these are not the only concessions being made to the demand for occupationalizing the upper portions of collegiate training, as may be judged by the fact that almost three fourths of the catalogues of institutions of the small-college type divulge on examination one or more modifications such as *pre-professional curricula* two or three years in length, and strong departments offering *majors or curricula in professional lines* such as business administration, engineering, and home economics.

g. All these changes have been accompanied during the last third of a century by a *shift of enrollment* that has made the higher institution of the university and polytechnic type the dominant one from the standpoint of total registration; that is slowly but unmistakably (at least in the Middle West) making the separate college, as regards the length of stay of its students, more and more a junior college, at the same time that proportionate registration in the third and fourth years in the university is increasing; and that finds a declining proportion of men in the upper years of the liberal-arts unit in the university.

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These changes — from the advancing age of the college student to the shift of enrollment — are all of a piece — links in a single chain of evidence. All lead to the conclusion of the appropriateness of a junior-college line of cleavage somewhere near the middle of the four-year college period.

2. The inheritance by the high school of courses formerly given only in the college leads one to expect a large amount of *overlapping* in the curricula. The expectation is fully corroborated by the results of careful inquiry. This duplication may be looked at in two ways: in the first view the fact that the two institutions concerned give courses more or less identical (such as beginning modern foreign languages and first courses in chemistry) merely argues that the division between high-school and college work is arbitrary and illogical, that our present boundary line between schools cuts across a field of learning essentially inseparable; in the second view it is recognized that the individual student is actually repeating in his first two college years what he has already covered in the high school — a repetition the extent of which has been estimated after investigation at a sixth to a fifth of the student's high-school work. This is a deplorable waste and arises primarily from the fact that the courses are taken in two separate institutions, the upper of which is not sufficiently cognizant of what is going on in the lower. Avoidance of repetition and the working out of a reorganization of courses bringing with them proper sequences cannot come until all work of a similar sort is brought, through junior-college reorganization, into a single unit of the educational system.

Objections to the junior college. It is to be expected that criticisms are from time to time launched against the junior college. Some of them refer to the restricted offering or inadequate teaching or limited facilities of instruction. There can be no doubt that certain criticisms of this class apply, especially in the early stages of such a movement. They are,

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moreover, not totally inapplicable even to approved four-year colleges. The surprising thing is that the work given is already as reputable as it has been found to be. If the consummation of the movement is inevitable, these objections must in time be removed from most junior colleges, just as it has been removed from the stronger ones. The same inevitability must displace the objection of the public burden of cost involved in this upward extension of the schools, although it is to be admitted that junior-college work should not be provided in a given community until the lower schools have first been well provided for. The criticism that "it can't be college work anyway" because it is usually provided in connection with the public high school has already been answered by the evidence presented on the historical depression of the college curriculum. The charge that it disrupts the four-year college period is answered below where the logical organization of secondary education is discussed.

Types of junior colleges. The different connections in which the junior college has made its appearance have already been named in Chapter I. These are (1) as parts of public-school systems, usually in association with high schools; (2) as private institutions, usually in association with facilities for private secondary education; and (3) in state institutions, more often than otherwise in connection with normal schools and teachers' colleges. In the last group are to be found "branches" of other state institutions, for example, of state colleges of agriculture and mechanic arts. While all types are to some extent influential in popularizing the junior-college idea, obviously the one which will most affect American secondary education is the first-named; therefore subsequent consideration of the place of the junior college will be restricted to it.

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III. SIGNIFICANCE OF THE CONJUNCTION OF THE TWO MOVEMENTS

The fact of conjunction not to be ignored. The fact that the two movements represented in the junior high school and the junior college appeared on the educational horizon almost contemporaneously was reported near the close of Chapter I in dealing with the fourth type of American secondary school. These two movements, representing, respectively, downward and upward extensions of the public high school, were referred to as ushering in the "extended secondary school." Both movements appear to be natural and inevitable. The question of incorporating them into our secondary-school organization is not *whether* but *how*. It becomes increasingly clear that the two movements must take cognizance of each other, and the problem can be reduced to this question: Should the three-unit arrangement (a 3-3-2 plan) be fostered, or should we cast about for some other, more suitable, plan of organization?

The logical organization of the eight-year period. Early in a consideration of the problem one is impressed with the impracticability of a plan of organization which provides for a three-unit secondary school with three years in each of the two lower units and two years in the highest. Certainly this would give us superfluous problems of articulation and administration. A much less unwieldy procedure seems to be the division of the full eight-year secondary-school period into two units of four years each, and their administration after a manner similar to that being followed with respect to our present-day junior and senior high schools.

This concept of a 6-4-4 organization of education is not without precedent in educational *opinion*. It was proposed in 1915 in a report of a committee of the North Central Association of Colleges and Secondary Schools. This report, adopted by the association, recommended an elementary

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school of six grades, and a "Lower Secondary School" and an "Upper Secondary School," each of four grades. The lower secondary-school unit should include the seventh, eighth, ninth, and tenth grades; the upper secondary-school unit, the eleventh and twelfth grades and the first two college years. The recommendation also included the possibility of the student's completing the eight years of work in six.¹

Professor Miller of the University of Wisconsin and Professor Proctor of Stanford University more recently advocated an identical organization,² the former proposing that the two resulting units bear the names now carried by the three-year units in the junior-senior organization.

The proposed organization has had its prototypes in *practice* as well as in *opinion*. The first public secondary schools following it were those of Hibbing, Minnesota. The plan was in operation for only a single year, discontinuance being brought about by factors outside the plan itself. An approach to a precedent in practice is the length and arrangement of curricula in certain Southern junior colleges. In shifting from their previous organizations some of these Southern private schools retained the name "senior" for the last class (which is now on a par with the sophomores of four-year colleges), and the three names "junior," "sophomore," and "freshman" for the three classes next below. The North Texas Agricultural College and the John Tarleton Agricultural College, also in Texas, have curricula of similar length, students bearing the same classifications as those in the private institutions referred to. The French lycée, to be considered again in the last section of the chapter, is to some extent similar in that it is constituted of two cycles: the first of four years; the second, of three years.

¹ Proceedings of the Twentieth Annual Meeting of the North Central Association of Colleges and Secondary Schools, pp. 77-78.

² Harry L. Miller, "The Junior College and Secondary Education," *Wisconsin Journal of Education* (March, 1922), pp. 47-51; Proctor (28).

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The schools of Pasadena, California, are committed to organization in accordance with this 6-4-4 plan, and other systems are working toward committal to the plan.

Further advantages of the 6-4-4 organization. Among the advantages of the plan are some associated with what have been designated above as the reorganizing purposes of the junior-college movement. It will help, as has been stated, to solve the problems of articulating the several units of the system, and related in turn to this advantage is the opportunity for economizing time in the longer units in which this grouping results. This economy is found in the more rapid advancement of the more capable students. Since the colleges largely repeat studies which the student has taken in high school and at other points in the full secondary-school period included, there is reason to believe that the typical length of stay can in time be shortened by a full year or even more, and that ultimately there will ensue a seven-year secondary-school period or even a six-year period. If this is not accomplished, we shall cover more ground in the same time, enriching the extended secondary-school course, which is likewise a method of economizing time. Both these types of economy are being achieved simultaneously in the laboratory schools of the School of Education of The University of Chicago, which have taken over some of the work of the junior-college years.¹

Since the 6-4-4 plan provides a terminal four-year senior secondary-school unit, it will in time compensate for the tendency of the junior-college movement to break across the student's four-year college course, a disruption deplored by those in charge of separate colleges.

It will also, as is sometimes claimed, improve high-school instruction. This will come about by having teachers who are prepared to give courses on the former college freshman

¹ Studies in Secondary Education — I, Supplementary Educational Monograph No. 24, pp. 17-19. The University of Chicago Press, 1923.

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and sophomore level also give courses in the two lower years of the senior secondary-school unit, thus securing the benefits of better teacher-preparation in subject matter for these lower years. Better laboratory, library, and other facilities will also be at hand for use in connection with such courses. At the same time the division into units at the point indicated — between the tenth and eleventh grades — will prevent that confusion of standards of work which is sometimes now manifest because students in lower high-school years and in junior-college years are too closely associated in the same educational unit.

IV. THE EUROPEAN ANALOGY

The concept of analogy. The analogy of the extended American secondary school with the organization of secondary education in certain European systems of schools has been so often claimed that it seems desirable to examine it with some care. The origins of the concept of analogy have already been referred to (see Chapter I) in listing the influences at work to cause junior-high-school and junior-college reorganization. The downward extension was first urged, as was there reported, in part because in these European secondary schools the study of such subjects as the foreign languages and supra-arithmetical mathematics was begun earlier than with us. Extension upward was first urged because of what seemed the unfavorable results of a comparison of our higher institutions with those of Germany and France. Henry Phillips Tappan, for instance, in a book published in 1851 (the year before he became president of the University of Michigan), said: ¹

We have spoken of the German Universities as model institutions. Their excellence consists of two things: first, they are

¹ Henry P. Tappan, *University Education*, pp. 44-45. G. P. Putnam's Sons, 1851.

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purely Universities, without any admixture of collegial tuition. Secondly, they are complete as Universities, providing libraries and other materials of learning, and have professors of eminence to lecture on theology, law, and medicine, . . . in fine, upon every branch of human knowledge. . . . Collegial tuition in the German Universities does not exist, because wholly unnecessary, the student being fully prepared at the Gymnasium before he is permitted to enter the University. Without the Gymnasium, the University would be little worth.

Another educational leader who early perceived the desirability of upward extension was William Watts Folwell, who, in an address delivered in 1869 at his inauguration as president of the University of Minnesota, urged relegating to American secondary schools "those studies which now form the body of work for the first two years in our ordinary American colleges. It is a clear case that such a transposition must by and by be made. . . . How immense the gain . . . if a youth could remain at the high school or academy, residing in his home, until he had reached a point, say somewhere near the end of the sophomore year, there to go over all those studies which as a boy he ought to study, under tutors and governors! Then let the boy, grown up to be a man, emigrate to the university, there to enter upon the work of a man. . . ." ¹ In citing the origin of the idea Folwell referred to the *Gymnasium*, the "splendid secondary school, fitting German boys for the work of men in the university." ² The advocacy of extension in one or both directions on analogical grounds has persisted up to the present as one line of argument, a recent manifestation being an article bearing the caption "Reorganization on European Lines appears Imminent." ³

As already stated, it is the secondary schools of Germany and France which are usually referred to in discussing the

¹ William W. Folwell, *University Addresses*, pp. 37-38. H. W. Wilson Company, 1909.

² *Ibid.* p. 38.

³ L. E. Blauch (31).

parallelism. On this account the comparison here essayed will be largely with organizations in these two countries. Brief treatment will, however, be given the English system and certain other European systems, especially since the values of the comparisons do not inhere strictly in the degree of analogy found, but in a better understanding of the meaning of the whole problem of secondary education as well.

Fundamental differences between American and European schools. Inquiry into the extent of congruity of the analogy is no simple task. It is hedged about by a host of obstacles which are in the nature of fundamental differences in educational institutions and in social organization. Before we can generalize on the extent of congruity it will be necessary to point out some of these differences, in so far, at least, as they relate to schools. The aspects to be considered are differences in the *external organization* of the systems, in *curricula*, in degrees of *selection and retardation*, and in *social ideals* affecting school organization.

Differences in external organization. Whereas in this country we have been achieving a *single articulated system* of schools — elementary, secondary, and higher — presumably open on equal terms to all, each of the two European countries being used in this comparison has in effect been operating a *three-system* organization. In Germany there is, first, the *Volksschule*, an eight-year school attended by boys and girls of the common people. After completing this at about the age of fourteen, the schools open to these pupils are continuation schools, vocational schools, middle schools, etc. Completion of the curriculum of the *Volksschule* does not mean, as with completion of our elementary school, admission to the secondary school. When transfer to the secondary-school system from the *Volksschule* is made in Germany, which is not proportionately often, it is done much earlier; for boys, for instance, it is at the point of beginning of the secondary school, which is at the age of nine or ten.

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The two remaining systems are those for boys and girls of the higher classes. The systems are separate. The secondary schools for boys are of four kinds: the *Gymnasium* (out-numbering the others), an institution emphasizing Latin and Greek; the *Realgymnasium*, emphasizing Latin, modern languages, and some science; the *Oberrealschule*, emphasizing modern languages, mathematics, and science; and the *Realschule*, offering the first six years of the curriculum of the *Oberrealschule*. Success in examinations on the completion of the work in any one of the first three of these secondary schools, which are nine-grade schools, admits to the German university, which is a place of specialization. Connected with this form of secondary school is the three-grade preparatory school, the *Vorschule*, from which almost all secondary-school pupils come. Thus the *theoretical* age for the completion of the German secondary school for boys is eighteen, the same age as for graduation from our high schools.

The basic unit for the higher education of girls in Prussia, which may be used by way of illustration, is the *Lyzeum*. Its curriculum is for girls from the ages of six to sixteen. This may be followed by one of two courses — the first (the *Frauenschule*) of two years, and the second of four years — which prepares for teaching in the lower schools. Preparation of girls for the university is accomplished in various *Studienanstalten*, with curricula rather similar to those in the secondary schools for boys and bearing similar titles, to which transfer must be made before completing the work of the *Lyzeum*. The time of transfer is regulated by the preparatory curriculum pursued. These curricula terminate at the same theoretical age as do those of the secondary schools for boys.

A description of the external features of the German organization is not complete without reference to the *Mittelschule*, which offers a nine-grade course, the first three grades of

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which it has in common with the *Volksschule*. The curriculum in the upper grades is somewhat broader than that of the *Volksschule*, containing even a modern foreign language begun at the age of ten or eleven. Advantages other than the curriculum are the additional year and (a considerable factor in a society in which class is significant) a school less common than the *Volksschule* and at the same time less unattainable for many than the schools for the higher classes. In the process of democratizing education in Germany this school may assist in showing the way to articulation of the *Volksschule* and the schools for the higher classes.

The French school corresponding to the *Volksschule* is the *école primaire élémentaire*, which is attended by children of the lower classes from the ages of five or six to about thirteen. Those who complete the course have open to them courses in the superior primary school, in vocational schools, or in continuation courses. As with the German organization, there is no articulation with the higher schools at this level or, to any large extent, even at lower levels, although in theory it is provided for at the opening of the boy's secondary school proper. The French *lycée* and *collège*¹ for boys extend over what is assumed to be seven years of work, divided into two cycles — the lower of four years, the upper of three years. In each of these the first year is entered upon after the boy has completed the work of the preparatory and elementary divisions covering four years, this in turn being preceded by a year in the infant class, which he normally begins at the age of six. The full curriculum being twelve years in length, the French boy *theoretically* completes the last form of the *lycée* at eighteen, or not far from the age at which the German boy is scheduled to complete the work of the *Gymnasium* and the American boy to complete the high school. The goal of the student in the *lycée* or the *collège* is the baccalaureate,

¹ *Lycées* and *collèges* are essentially similar, the former being maintained by the state, and the latter usually by the commune.

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a degree of secondary education attained after severe examination. This degree is necessary for admission to the university.

The separate secondary schools for girls in France bear the same names of *lycées* and *collèges*, but, as temporary arrangements, there are "secondary courses" also. These units have five-year courses, begun by the pupils at approximately twelve years of age and completed at approximately seventeen. They are preceded by preparatory courses of three years maintained in connection with these schools, the preparatory courses in turn being preceded by a year in an infant class, which girls normally enter at eight years of age. Completion of the work of the girls' secondary schools does not culminate in the baccalaureate, which means that such women as enter the university do so at greater inconvenience than the men.

It must be clear that in the three-system arrangements in Germany and France the secondary school is not secondary in the same sense as with us, where it lies *between* the common school and the higher institutions. Furthermore, the secondary units proper begin at an earlier point than in the United States, even in comparison with our extended secondary school.

Differences in curricula. The second obstacle to a ready inquiry into the extent of the analogy is found in the wide divergence of curricula in American schools as contrasted with German and French secondary schools. The classical emphasis of the *Gymnasium* has already been mentioned. The requirements by years are shown in Table XXVII. The curriculum of the *Realgymnasium* (not reproduced here) reduces the emphasis on Latin, omits Greek entirely, and stresses much more than does the *Gymnasium* the following: French, English, mathematics, natural science, and drawing. There are other minor changes also, including the removal of Hebrew, which is an optional subject in the *Gymnasium*.

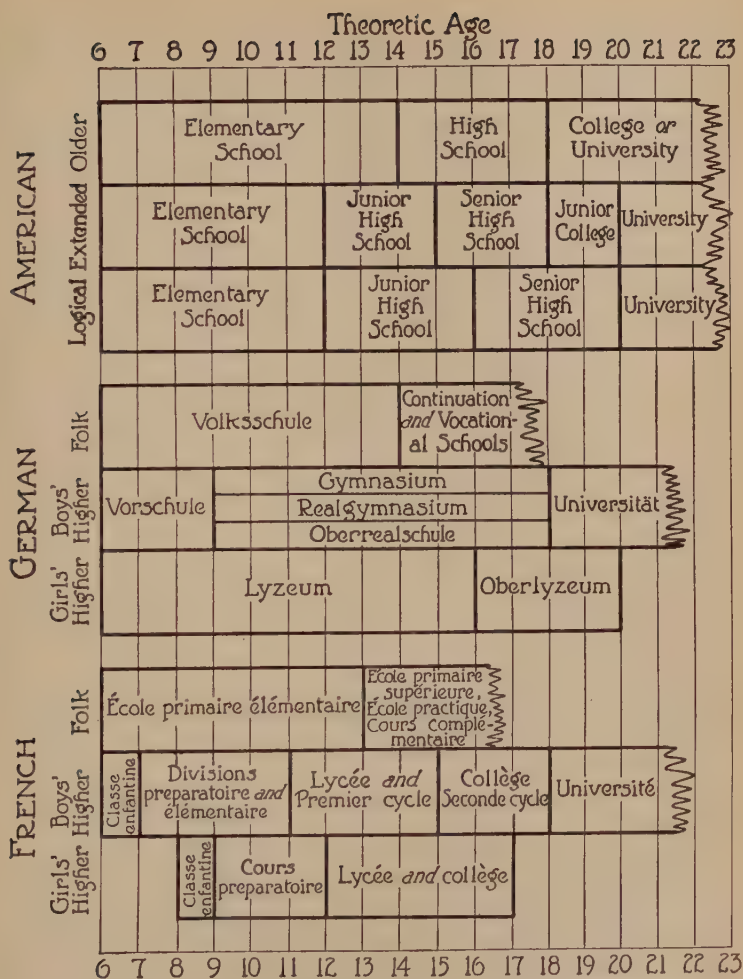


FIG. 40. Evolving organization of American education and dominant (but not all) types of organization of education in Germany and France

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The *Oberrealschule* carries the modernization even farther, omitting all Latin as well as Greek, and bringing further notable allotments of class time to German, French, English, geography, mathematics, and natural science. Our own curricula are far from being as uniformly standardized, making comparison difficult indeed.

TABLE XXVII. PROGRAM OF STUDIES IN THE GERMAN GYMNASIUM

SUBJECTS	HOURS PER WEEK IN EACH CLASS									TOTALS
	VI	V	IV	U III	O III	U II	O II	U I	O I	
Religion	3	2	2	2	2	2	2	2	2	19
German	4	3	3	2	2	3	3	3	3	26
Latin	8	8	8	8	8	7	7	7	7	68
Greek	—	—	—	6	6	6	6	6	6	36
French	—	—	4	2	2	3	3	3	3	20
English	—	—	—	—	—	—	2	2	2	6 ¹
History	—	—	2	2	2	2	3	3	3	17
Geography	2	2	2	1	1	1	—	—	—	9
Mathematics	4	4	4	3	3	4	4	4	4	34
Natural science	2	2	2	2	2	2	2	2	2	18
Writing	2	2	—	—	—	—	—	—	—	4
Drawing	—	2	2	2	2	—	—	—	—	8
Singing	2	2	2	2	2	2	2	2	2	18
Physical training	3	3	3	3	3	3	3	3	3	27
Geometrical drawing	—	—	—	—	—	2	2	2	2	8 ¹
Hebrew	—	—	—	—	—	—	2	2	2	6 ¹
<i>Total</i> ²	30	30	34	35	35	35	35	35	35	304

Significant differences between the curricula in German schools and those in operation with us are the much earlier point of beginning work in foreign languages in Germany, and the longer period of years and greater total amount of class time over which these and other subjects are pursued there. A fact not made clear in the table is the earlier introduction of phases of supra-arithmetical mathematics.

¹ Optional.

² Excluding optional subjects.

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Despite the relatively chaotic conditions of arrangements of courses with us it is possible to make a partial comparison of content pursued, but only in the older subjects. Boys in *Untertertia* (the fourth class in order from the beginning) in the *Gymnasium* are reading Cæsar's "Gallic War," whereas the American boy does not undertake it until the following year. Among materials read in Latin in *Obersecunda* (the third class from the top) is Livy, Book XXI. American college catalogues picked up at random show that this is standard content for freshman courses. Again, the student in *Oberprima* (the last class) reads Tacitus, which is typical material for our sophomore courses. Bolton says that "the gymnasial graduate has about the same mathematical acquirements as the average college student at the end of his freshman year."¹ Tabulation of courses in mathematics intended for our college freshman as shown in a random selection of college catalogues indicates that these are trigonometry, college algebra, and analytic geometry.

A difference between the German and the French organizations of secondary education is that the German provides for curriculum differentiation through establishing the different institutions as these have been named, whereas the French system provides for it within the same school. Even in the lower cycle of the latter there are two divisions — the curricula in one leaning toward the classical, in the other toward the modern. In the second cycle differentiation is increased by providing during the first two forms four sections: Latin-Greek, Latin-modern-language, Latin-science, and science-modern-language. Differentiation is again continued in the final year, which has two forms, designated as philosophy and mathematics, each of these having two sections. In France, as in Germany, foreign languages and supra-arithmetical mathematics are begun earlier than is typical with us and are continued over longer periods of years.

¹ Frederick E. Bolton (32), p. 223.

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Mention of the classics read in that French curriculum which retains them would indicate that, as in the *Gymnasium*, students in the last year read materials to be found in freshman and sophomore courses in the American college. No curriculum in the *lycée* appears to carry the student beyond the courses in mathematics already mentioned as typical of our freshman college year.¹

Differences in selection and retardation. Another respect in which the European and American secondary schools differ is in the degree of selection. The high degree of selectivity in Europe is a matter of almost universal comment by American observers. The following quotation may be regarded as typical:²

... Everywhere on the continent the secondary school is a selective institution, by no means inelastic, but always severe; the teachers are trained scholars, highly esteemed, education is seriously regarded, and school is a passport to social prestige and to professional and official standing. . . . It is interesting also to note that the increasing popularity of modern studies has not decreased the demand upon the student. The continental teacher on the modern side is as stringent as his brother teacher on the classical side.

At another point the same writer says:³

... Deep-seated social and political differences [among the countries of Europe] have not . . . thus far seriously influenced popular attitude towards the secondary schools. Though these schools are freely criticized because their curricula are too narrow, their methods too mechanical, their attitude too unsympathetic, they are not asked to abandon their intellectual standards or to modify their intellectual aims for the purpose of doing something entirely different for those unable or indisposed to maintain themselves in them. Other forms of educational opportunity are

¹ Interpretations on curriculum in German schools are based on Bolton (32), chap. iv, and on James E. Russell (47), chaps. xiii, xvi; interpretations on curriculum in French schools are based on F. E. Farrington (34), pp. 192-199.

² Abraham Flexner (37), p. 68.

³ *Ibid.* p. 63.

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in process of creation and extension for boys and girls who are intellectually and socially handicapped, or who are, in point of ambition, indifferent.

The difference in degree of selection between the European and American secondary schools is implicit in the materials already presented in Chapter I. This is not to say that intellectual selection is not operative with us. It has been shown during the canvass of the factors of selection in Chapter III that intelligence and scholarship are among the most important factors in influencing elimination and retention. There can be little doubt, however, that there are large differences in the *degrees* of selection along these lines between schools in Europe and schools here.

It is to be expected that in institutions which are as highly selective as are the German and French secondary schools, and in which the social motive to success is so imperative, there would result an accompanying difference, as compared with our schools, in the extent of retardation (or, more appropriately, over-ageness). These differing rates of advancement within the schools become an interesting constituent of the analogy, all the elements of which will be considered in the closing portions of this chapter.

It is within the purview of this book, although perhaps not strictly logical at this point, to point out how great is the problem, only in small part solved, which it becomes America's duty to solve because of our proclivities toward a less selective, and therefore a more popularized and democratic, secondary education. The means of further popularization were listed in the concluding section of Chapter III, but the present contrast brings into relief a regrettable deficiency in our schools; namely, the failure to spur the more competent minds on to their highest level of performance. There can be no question that the unfavorable light in which the scholarship in many of our high schools appears in contrast with that in European secondary schools results in no small part from

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the lack of an appreciation of what popularization involves and from our failure to adapt the means to more widely differing abilities and motives. Stringent selection being out of keeping with our more democratic assumptions, our way to higher levels of performance on the part of those capable of it must be through other means, such as grouping by ability, gauging the work more definitely in accordance with the individual abilities represented, and the like.

At the same time we ought not to entertain the hope that *all* our pupils will ever attain the levels of scholarship reached by the more selected pupils in European secondary schools. In view of our widely different social and political ideals and assumptions *our secondary schools are not to be disparaged if such a universal scholarly equivalence is never achieved*. Instead of suffering a twinge of conscience whenever some new observer of both American and European schools reiterates the traditional criticism, and then proceeding to set up higher selective barriers, we should consider with full appreciation again how the popularization of secondary education is related to the genius of our civilization; we should then make such readjustment of the means and methods in our schools as is necessary for securing the highest level of performance that can come from a given mental equipment of the pupil. By intelligent and persistent effort we may be able to render a substantial service to the world's progress by providing the models of practice to be followed in European countries when these countries shall have arrived at the degree of popularization which we have already reached.

Differences in social ideals. Differences in social ideals, too, are obstacles to a scrutiny of the analogy under consideration. It has already been made apparent in this treatment that there are fundamental differences between the social ideals of our country and those of the two European countries so far represented in the comparison, differences of which the dissimilarities in secondary education are definitely expressive.

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Nothing else could account for the three-system organization, which sets up almost insurmountable barriers to shifting from one to another, as compared with our sequential organization. The charging of tuition fees for attendance on these European secondary schools, despite the fact that the systems concerned are *public*, is in harmony with their general exclusiveness. The curricula and the degrees of selection — social, economic, and intellectual — likewise are in accord with the differing social ideals.

It would be an error to accept the differences noted in school arrangements as fixed, and even a greater error to assume the permanency of the social organizations and ideals which they reflect. Our own rapid development in these respects since colonial days should be a warning against such an assumption. There are at hand, in fact, evidences of a struggle toward more democratic educational organization and some evidences even of actual progress in this direction. Flexner reports ¹

... indications of a movement in Europe towards the breaking down of the custom of restricting or limiting educational opportunities more or less according to social or economic distinctions. The first German school law adopted after the recent revolution ordered the suspension, not later than 1930, of the special preparatory schools hitherto maintained for the well-born and the well-to-do, and consolidated the education of all children up to the tenth year.

The *Einheitsschule* (uniform school), long contended for in Germany, is thus at hand. Agitations for other reforms, in the direction of better-articulated systems and of progress toward achieving them, could be cited for both Germany and France, as well as for other European countries. The differences referred to are therefore subject to change from period to period. One may take it for granted that they will move gradually toward disappearance.

¹ Flexner (37), p. 60.

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Secondary schools elsewhere on the Continent and in England.

Other more democratic countries on the continent of Europe afforded Germany a precedent for the *Einheitsschule* for which she has been striving. In some respects they have school organizations more nearly analogous to our extended secondary school than either Germany or France. For example, Denmark has a common-school period for all children between seven and ten years of age. Continuation in school from this point is either in an advanced division of the common school until the age of fourteen, which is the end of the compulsory school period, or to an intermediate school with a four-year course for pupils from eleven to fifteen years. After this there is for those who plan continuation to the university or school of technology a three-year *Gymnasium* for pupils from fifteen to eighteen. This brief description leaves out of account continuation schools, a modern school division of one year for pupils who have completed the intermediate school, leading to *realskole* examinations and the famous folk high schools. The arrangements in the other Scandinavian countries, Norway and Sweden, are somewhat similar, although not entirely so.

The secondary schools of England drop into very different categories from those of the other countries already described. They are also far different from either our traditional organization or our impending organization. They may be briefly described by means of a further quotation from Flexner:¹

Three types of secondary school may be distinguished in England: (1) a class composed of the historic public schools [like Eton, Rugby, and Harrow] and a very much larger number of endowed grammar schools . . . ; (2) secondary schools of divergent origin — some religious, some municipal, some proprietary — which, under the steady pressure of a series of Parliamentary and administrative enactments beginning in 1902, are gradually being welded into a national system of secondary education ; (3) private

¹ Flexner (37), pp. 70-71.

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schools, representing every grade of merit from slight up to good and, in a few instances, excellent. This rough classification indicates that on crossing the Channel secondary education ceases to represent an approximately uniform process and result, though various forces — government inspection, grants, common examinations, definite requirements in teacher training — are slowly bringing about a measurable degree of order.

At another point this writer refers to the fact that "the Labor Party and advanced Liberals have made free and general secondary education the cardinal feature of an educational program."¹

The congruity of the analogy. Having examined at some length those differences between American and European education which interfere with the construction of a complete analogy between our extended secondary-school period and the secondary schools of Germany and France, we turn next to a consideration of the extent of the analogy obtaining. One may assert at the outset that, notwithstanding the significant differences noted, there *are* important and substantial elements in the analogy. They may be inspected in the following order: *ages of pupils, curriculum, termination of the period of general education, and the number of units in the organization.*

1. *Ages of pupils compared.* If we judge from the ages of pupils as these have been reported above (see also Fig. 40), the pupils in our junior high schools are approximately three years older at the time of entrance than are German boys on admission to the *Gymnasium*. The difference for the boys' *lycée* is only a single year; for the girls' *lycée* the entering ages may be considered identical. We may conclude, therefore, that German and French schools provide us with ample precedent for our recent tendency to lower the point of beginning our secondary-school organization; that is, if internal evidence at home is not sufficiently to our purposes.

¹ Ibid. p. 60.

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Let us look into ages at the other end of these schools. If we assume a continuance of regular promotion during the German youth's progress through the *Gymnasium*, he would be seventeen when he entered the *Oberprima*, its ninth and highest class, and nearly eighteen on completing its work and equipped for admission to the university. If these assumptions were borne out by the facts, the German student in the last year of his secondary school would be at approximately the same age as the American student in the senior year in high school, which is typically seventeen and a half years.

However, retardation has already been imputed to both German and French secondary schools. Certain students of the German secondary school have made clear that the rate of promotion is such as to delay the student's arrival in the *Oberprima* and, consequently, in the university. Bolton says that during his visits he "was surprised to find in the upper classes pupils who were no longer boys in appearance, but full-grown men, many of them with mustaches. They appeared to be fully as old as freshmen and sophomores in American colleges." He cites figures supplied by Dr. Juling, reporting on Prussian *Gymnasias*, showing that for the year 1890 only 19 per cent of the graduates were under nineteen, the percentages for the ages of nineteen, twenty, twenty-one and over being, respectively, 26, 26, and 28 per cent.¹

Referring to the ages of students in the Royal *Gymnasium* in Leipzig, Bolton says, "The average of the class just finishing was nineteen years, ten months." This seems to mean that although there are twelve years in each of the two systems compared, nevertheless, owing to delayed progress, students in the German school were approximately a year and a half older on the completion of their secondary education than are American high-school seniors when they receive their diplomas. On account of possible differences in methods it is safer to say that they were from one to two years older.

¹ Bolton (32), pp. 12-13.

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At another point Bolton shows the average ages of students in the last three classes of several German secondary schools, mostly *Gymnasias*, to have been 17.6, 18.7, and 20.1 years respectively.¹

The upshot of all this, as well as can be judged from the data referred to, is that *the student of the Gymnasium at the time of graduation is about as old as is the student in American colleges when he is near the end of his freshman year or well started on his sophomore year, if not near the end of his sophomore year.*

There is no reason to doubt that the extent of retardation is any less for the *lycée* and that it finds the French youth in the last year of his school at approximately the same age as the German youth in his last year in the *Gymnasium*.

2. *Curricula compared.* In this connection it is only necessary to recall what has already been set down and to relate it to what has just been reported concerning ages. It has been seen that junior-high-school reorganization is doing something toward bringing certain secondary-school subjects into grades formerly devoted exclusively to training in the common branches, the fundamental processes. Among these are the foreign languages, certain phases of supra-arithmetical mathematics, and natural science. This is analogous with the early introduction of such materials in the lower forms of German and French secondary schools.

It was shown above that during his last two years in the *Gymnasium* the German student reads Latin classics which are also typically read by the American college freshman and sophomore who pursue this subject. The same thing is true of Latin studied in the last two forms by the student in the *lycée*. Mathematics also shares to some extent in this approximate equivalence, since graduates of the *Gymnasium* and of certain of the curricula in the *lycée* have completed the mathematical studies ordinarily pursued by our college fresh-

¹ Ibid. p. 16.

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men. The significance of these facts for the analogy becomes apparent as soon as one recalls the actual, not theoretical, ages at which German and French youths complete their respective curricula, as just demonstrated: *they complete approximately the same work at about the same age as this is done in our colleges*. Although in other subjects comparison is impossible, this equivalence is significant, providing, as it does, a telling element of congruity in the analogy.

3. *The point of termination of general education.* The *Gymnasium* and the *lycée* have in common one characteristic which they do not share with the traditional American four-year high school: they terminate the general education of the student who is going on. The university to which the German and the French students are advanced on the completion of the work in the lower school is for them a place of specialization. On the other hand, in the majority of cases the American student who continues his education after his high-school course, moves on to an extension of his period of general education, an extension which, in terms of the organization of college curricula, is two years in length. Partial exceptions to this rule occur, as in engineering, agriculture, etc., but for most students the work of these two years is made general by prescriptions that assure contact with each of the main fields of learning. At the close of the two-year period the student is required to select a major subject, which he looks upon as occupational specialization and which in a majority of cases subsequently serves him occupationally.

One of the most relevant elements of the analogy of the extended eight-year American secondary school with German and French secondary education is that the former will include the first two years of our collegiate education, which, as just stated, are distinctly a part of general education. This outcome would remove our colleges and universities from their present anomalous position of standing astride the line of division between general and special education. The ap-

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propriateness of this element of the analogy impresses one especially when he recalls the approach to equality in the ages of gymnasial graduates and college sophomores.

4. *Economy through reducing the number of units.* It is not unreasonable to suppose that the somewhat shorter period of general education in these European systems, even after allowances are made for retardation, is in part attributable to economies resulting from their longer periods of secondary education. Our traditional organization may be seen (Fig. 40) to cut across the period of German and perhaps even of French secondary education at two points. To distribute the work of this period to three distinct units, as we do, is to invite wasteful duplication, and this must result in a longer period of years to cover the same ground or in the covering of less ground in a given period. Therefore it seems probable, that should we effect reorganization by breaking our new eight-year period of secondary education into not more than a two-unit arrangement, we should be taking steps simultaneously toward shortening the typical period of general education or toward making room for an enlarged and enriched content during the same period, or in both these directions at once.

QUESTIONS AND PROBLEMS

1. In what respects is the content of Chapter V related to the major problems of this chapter on junior-high-school and junior-college reorganization?

2. In what senses may the junior high school be thought of as a "transitional" school?

3. Compare the advantages of the 8-4, 6-3-3, and 6-2-4 plans of organization.

4. Why should the 6-2-4 plan be less stimulative of thorough-going reorganization than the 6-3-3 plan?

5. Certain Southern states have operated on the 7-4 plan of organization. Assuming that it is desired to restrict the period

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of education below the college to eleven years, state what division will be likely to be the most satisfactory: the 5-3-3, the 6-2-3, the 6-3-2, or the 6-5.

6. How is the advent of the junior college likely to affect the relations of the high school and the college?

7. How do instructors and instruction in junior colleges compare with those giving the same work in colleges and universities (see Reference 26)?

8. Cite evidences of overlapping in your own high-school and college work.

9. Cite examples of semiprofessions for which junior colleges might give training.

10. Compare the advantages of the 6-4-4 and 6-3-3-2 plans of organization.

11. What names are appropriate for the two four-year units into which it has been advocated the eight-year period of secondary education should be divided? Is there any justification, as has sometimes been suggested, that the lower unit be called the high school and the upper unit the college? Or should they be designated as junior high school and senior high school?

12. Discuss the judgment occasionally ventured, that the junior college is more appropriate to the West and the Middle West than to Eastern states.

13. Compare the organization of elementary education in Germany and France with that in the United States.

14. Compare as to subjects taken and the content of these subjects the work of pupils in the last four years of our eight-year elementary school with that of corresponding years in German and French secondary schools. Make a similar comparison for some junior high school. In what respects, if any, is the latter a step toward the European organization of secondary education?

15. How would the argument of analogy between the plan of organization in German secondary schools and our tendency toward reorganization to include junior-high-school and junior-college years be affected if the German schools should attain regularity of promotions?

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VIII

SECONDARY-SCHOOL ORGANIZATION: THE RURAL-HIGH-SCHOOL PROBLEM

I. PRESENT LIMITATIONS OF RURAL SECONDARY EDUCATION

The dual nature of the inadequacy. A writer who for years has been studying the needs of rural education, knowing at the same time of school conditions in urban territory, has said of the situation in rural secondary education: ¹

We face no more serious educational problem than that raised by the adjustment of the rural high school to the needs of its constituency and by the necessity of bringing all rural children within the zone of influence of some high school. . . . It is suggested that its solution will offer a way to a practical interpretation of equality of educational opportunity.

He is convinced that "unless [the situation] is recognized and remedied it will be a potent force in lowering the character of the rural citizenship of the future."

The inadequacy of present-day rural secondary education may be thought of in two main aspects: (1) the small proportion of the farm population securing some kind of education on this level and (2) the unsatisfactory conditions under which the education is carried on. After presenting data concerning illustrative states and indicating that in all states the percentages of farm and non-farm populations from fifteen to nineteen years of age enrolled in high school are, respectively, 28.8 and 44.3, a specialist in the United States Bureau of Education makes the following statement in summary on this point: ²

¹ George A. Works (19), p. 19.

² E. E. Windes (18), pp. 4, 23.

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Farm children are not reached by secondary schools to the extent that urban children are reached. Certain states have succeeded in reaching farm children to as great an extent as city children, but the states which are primarily agricultural are far from realizing this aim. Apparently the more purely agricultural a state is, the greater the discrepancy in the spread of secondary education to farm and non-farm groups.

The unsatisfactory conditions referred to are inherent in small schools, which, it will be granted without argument, are for the most part those accessible to the rural population. The distributions of high schools by size of enrollment, by the proportions which are rural, and by the average enrollment (see Chapter VI) help to an appreciation of the magnitude of the rural high-school problem. In order to bring home the handicaps of pupils in attendance on these small schools, their limitations in a number of respects will be illustratively set forth as to staffs, size of classes, the curriculum offering, guidance, allied activities, etc.

Teachers and principals. An impression of the *small size of the teaching staff* in rural high schools may be gained from the average for four hundred and five rural high schools in New York with enrollments rising from the smallest to the largest by steps of 50 pupils: for 1-49 pupils (in less than four-year high schools), 2.2 teachers, including principals; for 1-49 pupils (four-year high schools), 3.0; for 50-99 pupils, 4.9; for 100-149 pupils, 6.8; for 150 pupils and over, 10.2. The average for all the high schools represented was 4.3 teachers.¹

It is only natural that the spread of teaching work for members of such small staffs would be wide. For teachers in the rural high schools in New York just referred to the median *number of different subjects* taught was 3.3; for the three groups with enrollments of 1-49, 50-99, and 100-149 the median numbers were, respectively, 3.8, 3.2, and 2.7.² This wide spread of work must at best breed inefficiency,

¹ Emery N. Ferriss (5), p. 25.

² Ibid. p. 40.

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especially in the light of the youth and inexperience of such teachers. The relatively low salaries in these schools tend to staff them with teachers of little experience. A trifle more than half the teachers here represented had three years of experience or less.¹ The turnover in these positions is even

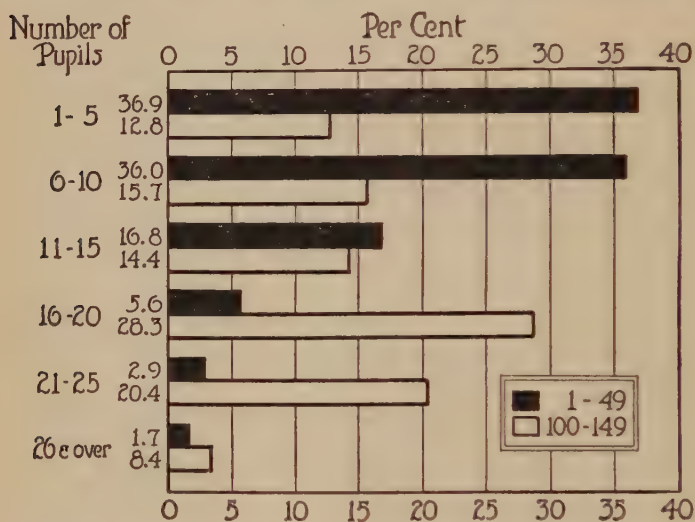


FIG. 41. Percentage distribution of classes by size in rural high schools of New York with enrollments of 1-49 and 100-149. (From Table 21 in Ferriss (5))

more discouraging to the stability of the schools, since almost half the teachers were in their present positions one year only, and three fourths of them two years or less.²

The principal has usually had much more experience, and he remains in a given position somewhat longer. He is so heavily burdened with teaching work and clerical responsibilities, however, that he cannot be highly useful in a supervisory capacity.³

¹ Ferriss (5), p. 104.

² Ibid. p. 106.

³ Ibid. pp. 28-39, 104, 106.

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Size of classes. The number of pupils enrolled in each class tends to be very small in the smallest of these rural high schools (see Fig. 41). For the group of schools enrolling 1-49 pupils, more than a third of the classes have five pupils or fewer, and almost three fourths have ten pupils or less. Even in the third group of high schools with 100-149 pupils, well over a fourth of the classes have ten pupils or less.¹ One may neglect the question of high costs per pupil enrolled, and make all allowances for the desirability of having classes no larger than of teachable size, and still have left a situation discouraging to the teacher, where inter-pupil stimulation and emulation are almost absent.

The curriculum offering. The small staffs in these high schools, even after the members are heavily loaded with different subjects and many periods of instruction each day, are able to offer only the most meager curriculum, often without any latitude in elective subjects. Referring once more to rural high schools in New York we find the following approximate percentage distribution of the pupils' time:²

English	23.7	Foreign history	5.9
Latin	13.0	American history and civics .	6.0
French	6.7	Economics	0.1
Spanish	0.9	Agriculture	1.3
Mathematics	17.7	Homemaking	1.7
Physics and chemistry . .	2.9	Shop and drawing	0.5
Physiography	0.7	Commercial subjects	6.0
Biological science	7.7	Miscellaneous	5.4

More than a fifth of the average pupil's time is given to the foreign languages and more than a sixth to mathematics. The social subjects, on the other hand, secure less than one eighth, and all science only a little more than a tenth. Agriculture, home economics, and the like are accorded almost negligible attention. There is an undue regard for tradition in this distribution, as well as — which is saying somewhat

¹ Ibid. p. 21.

² Adapted from Ferriss (5), p. 153.

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the same thing in other words — for college-entrance requirements. This is shown also in the percentages of the schools in which certain subjects are set up as requirements. English is, of course, prescribed in 100 per cent of the schools. But Latin I and II are prescribed in 36.6 and 34.3 per cent — more than a third — of the schools, and French I and II in 24.4 and 23.1 per cent — almost a fourth — of all schools. Elementary algebra and plane geometry are almost universal requirements. Although other subjects such as biology and American history and civics are also almost universally required, the conservative nature of the prescriptions is manifest.¹ A study of prescriptions in rural and "semi-rural" high schools, more widely representative because distributed in a number of states, discloses less of conservatism, but nevertheless a good deal of rigidity.²

Other handicaps in the small rural high school. When the same groups of schools represented in the foregoing sections are canvassed in reference to other factors that usually enter into a vigorous school situation, they are found to be sadly lacking. Some attention is being given to problems of pupil guidance, but "only a relatively small number have any definitely organized system of guidance."³ As to extra-classroom activities it is reported "(1) that they are given a comparatively small amount of attention, (2) that for the average school they are very limited in range, and (3) that the methods of control are very indefinite and varied."⁴ An analogous conclusion is drawn from a study of school and community relationships including efforts for high-school publicity: "Certain rural high schools are doing much, but such schools are still too few in number."⁵ The generalization from a study of the whole range of educational facilities, as these are provided in small rural high schools, is that

¹ Ferriss (5), p. 150.

² Ferriss (6), p. 57.

³ Ibid. p. 9.

⁴ Ibid. p. 40.

⁵ Ibid. p. 38.

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the situation, with only occasional exceptions, is too much characterized by ineffectuality.

Intelligence of farm and non-farm children. It is sometimes asserted, and if true it would assuredly operate as a limitation on rural secondary education, that the influence of selection as between rural and urban populations has over a long period been such as to result in a distinct inferiority in the native intelligence of the rural population. During recent years several investigations have been made the results of which have a bearing on the validity of this assertion, although no categorical answer to the question is yet at hand. Citation was made from one of these in Chapter III, that reported by Haggerty and Nash, which shows the median intelligence quotient and the interquartile range for the children of farmers to be the lowest but one in elementary grades among the seven occupational groups; namely, professional, business and clerical, skilled, semi-skilled, farmer, and unskilled. In the high-school grades the children of farmers drop to the lowest position. However, the nearer approach to homogeneity of all high-school groups makes for a nearer approach to similarity in intelligence of pupils from farms with pupils from the other groups. The authors ascribe this to the severity of selection which permits to advance to high-school grades a smaller proportion of the farmer or other lower groups than of higher groups; for example, the professional.¹ The first of these two authors, still using the original data from which this study was drawn, essays also a comparison of the intelligence of pupils in large and small high schools. This is not identical with a direct comparison of farm and non-farm groups, but the fact that the small high schools enroll much larger proportions of farm children would make the measure of intelligence for such schools show the influence of the selection claimed should there be any such marked influence. In this study the measures of central

¹ (III) (11), p. 566.

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tendency show a superiority for the large high schools, although the medians of scores and ages for the two types of schools are not so far apart as to lead to a conclusion of widely different *distributions* of the scores. Commenting on these differences and others analogous to them in ability in reading, Haggerty makes the following statement :¹

One inference which is easy to make from the test results is that the pupils attending the smaller schools are less intelligent than those attending the larger schools. The results of the intelligence tests would seem to indicate this, and it may be that there are a larger number of intelligent children in the villages and towns. The evidences on this point, however, are not conclusive, since there is good reason to believe that superior school training will enable a child to increase his score by a mere increase of reading efficiency without any alteration of native capacity.

A study of the intelligence of high-school seniors in Indiana made by Book included a comparison of the children of professional workers, clerical workers, skilled artisans, salesmen and clerks, business executives, day laborers, and farmers. The median score and the interquartile range place the children of farmers once more in the lowest position. But here, again, as in the study by Haggerty and Nash, selection has effected a high degree of similarity. This is shown in the fact that for the highest and lowest groups (professional and farmers) the percentages of scores above the median for the state were, respectively, 60 and 43, neither of them notably far from the norm of 50 per cent.²

The materials of another investigation of the problem, more directly pertinent than the preceding, were reported to the United States Bureau of Education by the State Department of Education in Connecticut. This study involved a comparison of 311 farm children and 232 non-farm children from eight to eighteen years of age with respect to age-grade

¹ Melvin E. Haggerty (7), p. 222.

² (III) (1), pp. 189-201.

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distribution, chronological age, mental age, intelligence quotient, reading age, accomplishment quotient, etc.¹ Illustrative reference will be made here only to the most important findings of the age-grade distributions and of the intelligence quotients. The percentage of accelerated pupils in the farm group was considerably larger than for the non-farm group, whereas the percentage of retarded pupils was only slightly larger. The median intelligence quotients were as follows :

GROUP	BOYS	GIRLS	BOTH
Farm	97	102	99
Non-farm	102	103	103

The specialist of the Bureau of Education reporting the study comments as follows :²

While this indicates slight differences between the groups . . . it is worthy of note that approximately the same differences exist between farm boys and farm girls as between the farm and non-farm groups. Whether the differences are hereditary differences between the groups is therefore open to question. . . .

. . . The fact that Connecticut is an old State where agriculture has declined and the native population has drifted to the cities for a number of generations, would appear to have considerable weight. If selection has produced anywhere in the United States an hereditarily inferior farm population, one could expect to find it in such a State. . . .

Even if the differences noted should ultimately be found to be of hereditary origin, the *distributions of intelligence for farm and non-farm groups overlap to such an extent as largely to discredit any belief that intellectual inferiority operates as a serious limitation on rural secondary education. The indubitable limitations remain the typical provisions made for rural secondary education as these have been described above.*

¹ Windes (18), pp. 11-15.

² Ibid. pp. 13-15.

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II. ORGANIZING FOR IMPROVEMENT OF RURAL SECONDARY EDUCATION

Types of consolidation. The avenue usually proposed and used for improving the untoward rural secondary-school situation is some means of school or district consolidation or centralization. This procedure seems potent enough to improve both aspects of inadequacy at once—both the small extent of popularization of secondary education in rural territory and the unsatisfactory conditions under which it too often at present goes forward. Consolidation, or centralization, has been brought about by various methods of combining territory and school population. In states or areas where district control is dominant, this has sometimes been done by consolidating two or more common-school districts. Sometimes it has followed town or township lines, the schools within these civil units being combined under a single educational administration. In some states these two methods have achieved *complete* consolidation within both the elementary-school grades and the high-school grades; in other states *partial* unification has been brought about—that is, high-school grades only are included. Elsewhere the unit of administration in consolidating schools has been the larger unit, the county. The traditions of former civil dominance have had a good deal to do with the particular avenue to centralization followed heretofore, but this has not been the sole influence. In recent years the county unit has been advocated by many leaders in education, but in states where the common-school district unit has long been operative most of the efforts to effect the change toward the county unit have met with rather stubborn resistance on the part of the rural population.

District consolidation. The improvement of the secondary-school situation in rural territory by means of district consolidation may be made obvious by considering two con-

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solidations among many effected in Minnesota. The two districts used illustratively are those centered in two small villages, Eyota and Canton, located in adjoining counties in the southeastern section of the state. Significant statistical data concerning these districts are presented in Table XXVIII. The population of each consolidated district is about double that of the most populous of the original common-school districts represented, that is, the village district. The large increments of area represented in the consolidated districts are contributed by the strictly farming territory. For the Eyota district the assessed valuation taxable for high-school purposes was approximately trebled; for the Canton district the increase was even greater. In both districts more than half of all pupils are enrolled from beyond the boundaries of the incorporated villages. As our chief concern is improvement of rural secondary education, special mention may be made of the fact that well over half the high-school enrollment in the Eyota district and two fifths in the Canton district came from farming territory. Nonresidents of the consolidated district help to swell the enrollment, especially in high-school grades, the tuition for these nonresident high-school pupils being paid by the state. Transportation in motor busses is provided for pupils coming from beyond walking distance, this being encouraged by generous aid from the state.

But an adequate impression of these relatively vigorous school organizations is not gained solely from numerical data of the sort reported. These should be supplemented by other details of information and also by visits. Limitations of space permit only partial description, and this largely for the Eyota district, although the developments in both merit more extended report. The numbers of high-school teachers, including the principal or the superintendent, in these two districts are, respectively, five and four. The curriculum offerings and requirements in both, although still too respectful of tradition,

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TABLE XXVIII. DATA PERTAINING TO TWO CONSOLIDATED DISTRICTS
IN MINNESOTA, 1924-1925

	EYOTA	CANTON
POPULATION		
1. Estimated population of incorporated village . .	450	350
2. Estimated population of portion of district outside of incorporated village	450	400
3. Estimated population of consolidated district .	900	750
AREA		
4. Approximate area in square miles of incorporated village	1	1
5. Approximate area in square miles of portion of district outside of incorporated village . . .	30 $\frac{1}{4}$	11 $\frac{1}{4}$
6. Total area of consolidated district	31 $\frac{1}{4}$	12 $\frac{1}{4}$
ASSESSED VALUATION		
7. Assessed valuation of incorporated village . . .	\$294,300	\$165,671
8. Assessed valuation of portion of district outside of incorporated village	\$589,200	\$416,867
9. Assessed valuation of consolidated district . . .	\$883,500	\$582,538
ENROLLMENT		
10. Enrollment in elementary grades (I-VIII) from incorporated village	85	41
11. Enrollment in elementary grades from portion of district outside of village	86	62
12. Enrollment in high-school grades from incorporated village	29	32
13. Enrollment in high-school grades from portion of district outside of incorporated village . .	35	21
14. Non-resident pupils enrolled	27	19
15. Total enrollment	262	156
TRANSPORTATION		
16. Number of busses operated	8	6
17. Average number of elementary-school pupils carried daily	84	60
18. Average number of high-school pupils carried daily	34	21
19. Total of (17) and (18)	118	81

are much better adapted to rural needs than would be true if the village districts only were endeavoring to support the work. The Eyota high school offers, in addition to the customary academic subjects, vocational agriculture (in-

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cluding farm shop), home economics, physical training, and chorus. The special instruction in music (in grades as well as in high school) is afforded through employing a teacher in coöperation with school authorities in a neighboring village.

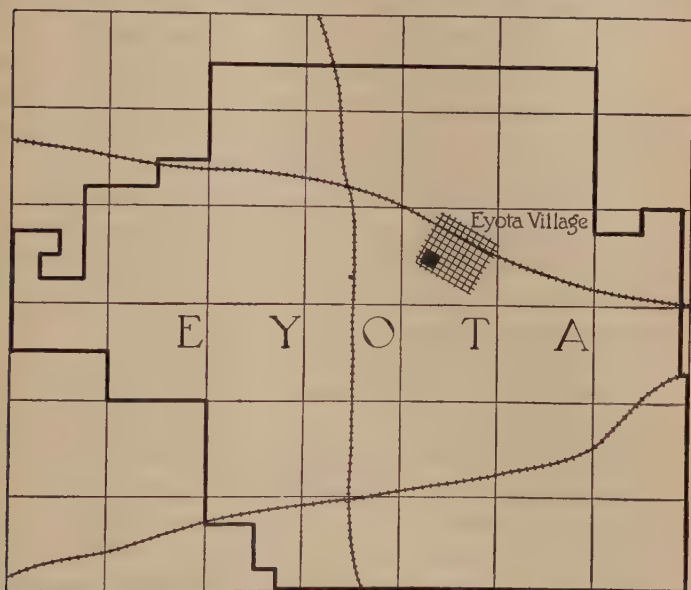


FIG. 42. Map of Eyota (Minnesota) Consolidated School District. (Heavy lines represent the district boundaries; light lines are section lines. The combined high-school and elementary-school building is located in the village of Eyota)

Moreover, space and equipment are at hand for the enriched program. Eyota's plant, for instance, contains well-adapted space and equipment for agriculture and biology, the physical sciences, and a suite for home economics. Within the school building are a large and well-equipped farm shop, a library room, a commercial room not yet in use at this writing, a combined gymnasium-auditorium having a stage

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equipped for theatricals and a motion-picture booth, a high-school assembly room, a well-appointed rest room for teachers and girl pupils, toilets, the superintendent's office, the necessary quota of standard classrooms for high-school and grade work, and the service rooms. Equipment is also at hand for preparing and serving school lunches. The recognition of extra-curricular activities is much more generous than in the usual small school. The development in music has been especially remarkable in the Canton district. These allied activities are encouraged by a vigorous development of community activities carried on in what is known in the Eyota district as the "community high school." The bus transportation equipment of this district is put to use on evenings of the school week and on Saturdays in carrying patrons and pupils to and from these community affairs.

It cannot be doubted that such consolidations operate to remove the inadequacies in extent of popularization and in facilities for secondary education in rural territory. It may be concluded from what has just been said that they can do much more, by adding to the richness of community life.

Partial consolidations. The salient characteristics of complete town and township consolidation of schools may be inferred by adding to what has been reported above the characteristic of having the boundaries of the new school district coincide with those of the town or township as civil units, as these are known to exist in the New England states, in the state of New Jersey, and in certain states of the Middle West. Attention will therefore be directed to a brief statement concerning what we have called partial consolidations, or unionization for high-school purposes only. The township high school in Illinois¹ (to use the development in this state as an example) got its start as early as 1867 under a special act of the legislature, an act passed to meet a desire in Princeton to establish a high school under township auspices and

¹ This brief statement is based on Horace A. Hollister (8).

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to have such establishment properly legalized. After the Princeton charter was enacted into a general statute in 1872, township high schools increased in number, but not with great rapidity until after 1911, when a law was enacted which provided for the organization of contiguous and compact territory, regardless of township and county lines, into new administrative units for high-school purposes. Professor Hollister says:¹

The school township does not lie evenly, as to distances, about a controlling district or center, nor do its physical features always make feasible the organization, for school purposes, of so large a unit.

Thus it appears that what was really needed was a more rational law under which to organize a larger community naturally centering about a controlling district in the shape of a village, town, or city.

The new law is thus "no longer a township law, correctly speaking, but a union-district or community high-school law,"² and therefore it has much in common with the consolidation provided through the union high-school districts as these are found in California, where such districts outnumber other types. These partial consolidations — that is, township, community, and union-district high schools — encourage popularization and improvement of rural secondary education. It seems to some, however, that by having removed one of the chief reasons for complete consolidation they have delayed the arrival of consolidation on elementary-school levels. This opinion is not acquiesced in by all observers. In Illinois these union high-school districts have also hindered junior-high-school and senior-high-school reorganization.

Centralization via the county unit. Aside from Utah (where excellent progress toward consolidated schools has been made) and New Mexico the only states using the county unit of organization are in the South (this statement includes Maryland in the Southern group). Certain counties in some

¹ Hollister (8), p. 60.

² Ibid. p. 18.

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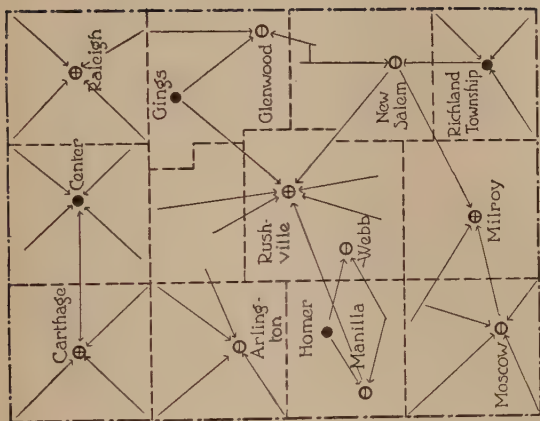
of these Southern states (for instance, Montgomery County in Alabama) have attained something like national repute for their efficiency in consolidation. The educational progress of Utah after the establishment of the county unit, and, even more, the theoretical advantages of a larger unit of administration, have led to the advocacy of this plan in other states of the Union. In 1922 Inglis, as a member of a survey commission, recommended the county unit for Indiana. Inasmuch as a concrete instance will help to an understanding of the advantages of the plan for rural secondary education, which is our concern here, quotation is made from his proposals for reorganizing schools on a county-wide basis for Rush County, a county in which consolidation and reorganization had already made considerable progress.¹

In 1921-1922 Rush County (exclusive of Rushville) maintained 27 separate schools. Of these, 10 were one-teacher schools (including one colored school), and 5 were two-teacher schools. There were 13 high schools in the county, Rushville high school included, with a total enrollment of 706 pupils — one high school for each 60 high-school pupils enrolled, or, if Rushville is excluded, one high school for approximately each 45 high-school pupils. Seven of the high schools enroll each less than 45 pupils (two of these, Gings and Homer, are two-year high schools), and all are within easy reach of larger and better high schools. Homer, for example, with 16 pupils, is situated on an excellent highway within two or three miles of Manilla, and Webb, with 33 high-school pupils, is within three or four miles of Rushville.

The two parts of Fig. [43] contrast the present situation in Rush County with the suggested reorganization. The 27 schools now in operation would be replaced by 14 school centers. Four of these centers would contain only the elementary grades one to six; six centers would contain both elementary and junior high-school grades; and four centers would offer all grades from the first to the twelfth. . . .

It is not supposed that all steps in the proposed reorganization could be effected at once. On the contrary, it would require at

¹ (16), pp. 217-218.



- Consolidated elementary school (6 grades)
- ⊖ Junior high school (and grades)
- ⊕ Junior-senior high school (and grades)

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least ten years to carry it through, each step being taken as the situation appears to warrant. Good educational opportunities cannot be furnished at a reasonable cost except through some such reorganization. Yet unless the township is abolished and the county unit established, any such statesmanlike reorganization is forbidden.

A restatement of advantages of the types of consolidation listed. Although most of the advantages of consolidation are both expressed and implied in the foregoing description, it is not out of place to summarize them and to add a few others before considering other means of improving rural secondary education.

1. Popularization of secondary education for the farm population, or equalization of educational opportunity, has been so often mentioned that it requires no further exposition.

2. It is well to keep in mind that consolidation brings increased resources for secondary schools. Combining forces in this way means more and better-paid teachers, better material facilities, and enriched programs better suited to the needs of rural life and better adapted to individual differences in interests, abilities, and destinations.

3. The farm population is, through direct representation, given a voice in the management of the high schools that endeavor to serve them. Since consolidation causes them to contribute to the support through taxation, the residents of farming territory will to a larger extent than formerly influence the make-up of the offering and also encourage their youth to attend. Too often shortsighted members of boards in strictly village-controlled or city-controlled high schools are averse to extending the offering by adding subjects peculiarly useful to those living on farms.

4. The larger number of pupils increases the size of classes, affording more inter-pupil stimulation or emulation.

5. The larger number of pupils enhances the value to the pupils of the extra-curricular life of the school.

6. The school becomes a more vital and vigorous center of community life.

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7. Complete district, town, township, and county consolidations have the advantage of fostering the interests of the lower schools, rather than neglecting them, as do the partial consolidations.

8. County consolidations, as compared with types working through smaller civil units, are less likely to ignore portions of the total rural area in providing high-school facilities, and more likely to equalize the burden of high-school support in the different areas represented.

Transportation of pupils. The dependence of popularization of rural secondary education on the provision of transportation is generally recognized in theory and often (though not universally) in practice. After an investigation of the effect of distance from high-school opportunities on attendance of boys and girls in rural New York, Works arrived at the following conclusion :¹

It is evident that if young people from the farms are generally to receive high-school education it must be reasonably accessible. This apparently means that the high schools should be near enough at hand so that most young people may live at home and attend them.

This in turn calls for transportation for most of those beyond walking distance from the schools.

Among problems involved in providing such transportation are distances, time on the road, modes of transportation, and costs, all of these being interrelated. There is also the difficulty of securing satisfactory drivers. Average one-way distances reported by Abel for a number of consolidated districts range as widely as from 3 to 18 miles, the median distance being 4.7 miles.² The average number of minutes spent on the road one way ranges from 17 to 64, or from approximately one fourth of an hour to a full hour. The median time is 35 minutes. The preferred mode of transportation is the motor bus, which, with good roads, has done much to

¹ Works (9), pp. 556-559.

² J. F. Abel (1), pp. 15-16, 38.

overcome objection to consolidation. Horse-drawn vehicles are decreasingly used.

To the uninformed, the cost of transportation sometimes seems prohibitive of consolidation. Various units have been used in studying it; for example, the cost per pupil per year, or the more refined unit, the cost per pupil per mile. Abel computed the latter unit for a number of districts scattered throughout the country and found the range to be as wide as from a half-cent to 27 cents, the median being 3.8 cents.¹ Selke found the median for consolidations in Minnesota to be 4.0 cents. The median cost in Minnesota on the larger unit, the cost per pupil per year, was \$32.46. Selke also shows that the cost is largely influenced by the number of pupils carried. For consolidations in which 24 pupils were transported, the median cost per pupil per year was \$47.50. The median dropped steadily with increase in the number of pupils until, in districts where 200 or more pupils were carried, it was \$24.99.² The differences are sufficiently wide and consistent to justify encouraging large consolidations and discouraging small ones. The median cost per pupil per year for all current expenses in the high schools of New York State have been reported as follows: for 1 to 25 pupils, \$205; for 26 to 50, \$144; for 51 to 75, \$134; for 76 to 100, \$118; for 101 to 150, \$118; for 151 to 200, \$117; for 201 to 250, \$114.³ The median cost per pupil per year for transportation as just reported is not as much as 30 per cent of any of these figures. It seems fair to admit that if these amounts may be spent annually on each pupil in schools which are for the most part unconsolidated, it would not be prohibitive to add to them the median cost per year for transportation for that portion of America's rural youth who should be induced to avail themselves of the opportunities of a high-school education.

¹ Abel (1), p. 18.

³ (XIX) (32), p. 63.

² George A. Selke (17), pp. 6-7.

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Dormitory facilities. Homes are sometimes so remote from high schools, especially in sparsely settled territory, or the development of roads is so unsatisfactory, as to put out of consideration daily transportation for all pupils not living in the immediate vicinity of the school. This is especially true in some of our Western states. It is only natural that such situations should stimulate, as they have, the provision of dormitory facilities.¹ Such provisions are further evidence of our insistence on the equalization of opportunity, and should be expanded in those regions not likely soon to be more densely populated.

Junior-high-school reorganization in smaller communities. Another means of improving the secondary schools of rural communities, a means often proposed and sometimes introduced, is junior-high-school reorganization. There are those, however, who believe that this improvement is for the urban system only. It is easier to decide on the question of the *desirability* of incorporating the junior-high-school idea in villages and in the open country than on the question of *feasibility*. Unquestionable desirability is founded on such advantages as have been pointed out for this type of reorganization in the foregoing chapter and at other points in this book, as well as on the need of facilitating transfer of pupils from rural to urban school situations, and vice versa. Without reorganization along junior-high-school lines in rural territory, and with urban districts in accelerated proportions committing themselves to reorganization, we should soon have the deplorable conditions of a dual system of schools — one type for the city and another for the country.

A study of the problem of feasibility leads to a consideration of the possibility of introducing the *features* of junior-high-school reorganization as these were described in the foregoing chapter. Such consideration leads in turn to a belief

¹ A description of the development of dormitories in connection with public secondary schools is afforded in (12).

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that the junior-high-school idea can in large part be embodied in the secondary-school organization of smaller communities. This conclusion has the material support of precedents in practice in some of these communities.

1. There seems to be no special hindrance in non-urban territory (except in states which have encouraged partial rather than complete consolidation) to incorporating that feature of junior-high-school reorganization which pertains to the *three-year period*. The problem of separation of this unit from grades above it is discussed at a later point.

2. On account of the small numbers of pupils involved the small school cannot adapt the program to irregular pupils as readily as the urban school can. Therefore it is more difficult in the smaller school to modify *admission requirements* to the seventh grade by adhering less rigidly to the requirements of completion of the work of the preceding grades. Yet there are conditions in the rural situation which encourage deviation from the conventional practice, particularly the small enrollments allowing for more attention to the individual.

3. The large constant element (usually well over half) of typical junior-high-school *programs of study* — including English, the social studies, mathematics, general science, and shop and home activities — encourages reorganization in smaller communities. The enrichment and redistribution of work in the constant subjects must and can, in large part, be achieved for all children, no matter in what type of school they are in attendance. It is chiefly in the range of subjects to be made available for the variable or elective portions of the program that the smaller community is handicapped. Work to fill out the pupil's daily schedule is being provided and must continue to be provided. It is impossible, therefore, to understand why the balance of the day's work, beyond that usually apportioned to the constants, cannot be of a type suited to junior-high-school purposes, even though not so generously as may be desired.

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4. *Grouping by ability* in the smallest communities is, of course, out of question, but may, as we have seen, be compensated for by the larger measure of individual attention possible in small classes.

5. The degree of *departmentalization* of instruction possible is directly dependent on the number of teachers employed in the grades concerned, and this in turn is somewhat dependent on the number of pupils enrolled. It will not now be often denied that wherever there are as many as two teachers for three or four grades, beginning with the seventh, some measure of specialization of instruction is desirable, even though complete departmentalization is obviously out of the question. In a situation where a full-time teacher has been available for seventh and eighth grades combined, reorganization to establish a six-year period of secondary education can always bring one more teacher into the departmentalization, thereby cutting down the number of different subjects for which each teacher is responsible. The *vertical* scope of instruction thereby required is more nearly within the range of human possibilities than is a *horizontal* spread involving subjects with which a teacher has had little or no contact during his period of training.

6. The feasibility of instituting the remaining features in smaller communities must be even more briefly dealt with than are the foregoing. There can be no serious impediment in these communities to modifying somewhat the conventional basis of *promotion* from grade to grade and promoting more largely by subject. A promotional procedure modified in this direction should be actually encouraged by the type of reorganization for smaller communities in which all six secondary-school grades are housed in a single structure. It is difficult to see how the improved *methods of teaching* increasingly found in junior-high-school grades should be distinctive of urban communities: they are imperative and feasible in all schools. Wherever pupils of the seventh, eighth,

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and ninth grades can be separated, to some extent at least, from those above and below, it is possible to develop a homogeneous *social organization* that can be put to educative uses. Separate group-rooms for the two three-year divisions are conducive to this development, although in six-year secondary schools some life and interests in common are likewise desirable. The *advisory system* can be simpler in reorganizations dealing with smaller enrollments than with larger ones. For one thing, as is implied in the statement concerning group-rooms, in the smaller units there need be no home rooms in the same sense as these are provided in urban junior high schools. Although the range of contacts, curricular and extra-curricular, of the pupil are naturally more restricted, it does not appear that an effective plan of guidance cannot be instituted. The *teaching staff* and the *plant* may also be provided to conform in no small part to junior-high-school needs. In fact, there is not a single feature of junior-high-school reorganization which may not in large part be provided for in the smaller population groups.

The assumption in the discussion of the feasibility of junior-high-school reorganization has been a community large enough to warrant the provision of the six-year range of secondary-school work. There will, however, be many communities too small to justify going on beyond the junior-high-school level. Small terminal junior high schools of this sort are not unknown. In fact, as has been illustrated in the county-unit reorganization proposed for Indiana, a good case can be made for a system by which the schools in some localities should not go beyond the six-year elementary school, in other localities they should include both elementary schools and junior high school, and in still others they should include all three levels of work. One of the merits of the properly organized and administered county-unit plan is that the means of advancement from the bottom to the top is afforded for every child (no matter in what section of the

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county he lives), even though the full twelve-year range of work is not offered in each community. As junior-college extension becomes more prevalent and the 6-4-4 organization is achieved, no great obstacle will be found to adapting the county-unit plan to it, because, as before, it will be found practicable to offer differing amounts of the full range of work in each subdistrict. Unless the county be large and populous, only a single complete upper secondary-school unit to serve the youth going through junior-college years need be provided. It is conceivable that the amounts of work offered in the several localities might terminate at any one of five points; that is, with the sixth, the eighth, the tenth, the twelfth, or the fourteenth school year. Where counties are so small in population as to discourage the provision of the last two years — that is, junior-college work — students would be sent to more populous neighboring counties. The proper distribution of junior-college extensions thus becomes a wider-than-county problem, — one for state control.

While the phrase "junior-high-school reorganization" has been here used to comprehend downward extension of the secondary school, there has been no intent to assume that all such reorganizations include what may in all strictness be referred to as junior high schools. It is perhaps proper to apply this name only to units administered with some degree of separation from the last three years of the six-year period and not to the lower three years of a single six-year unit administered with little or no effort at separation into two three-year periods. However, the argument that only fully separate units should receive the name junior high school might easily degenerate into quibble, since the lower years in some six-year organizations have been subjected to more fundamental modification than have the same years in completely separate three-year units. On account of the far-reaching nature of the changes called for, and the necessity that junior-high-school grades should serve almost identical

purposes whatever the grouping of grades in buildings, the phrase as here used seems appropriate.

Improvement through curriculum modifications. Several means of improving the rural secondary-school situation might still be discussed; for example, efforts to remedy certain deficiencies reviewed in an earlier section of the chapter — deficiencies in the staff (inclusive of training, experience, and subject-assignments of teachers and of the distribution of the principal's time), in the breadth of curriculum, in guidance, in extra-curricular activities, and in service to community activities and relationships. All are important; but the only one which will be accorded further consideration, except as problems arise in later chapters, is the curricular offering.

The main lines of curricular improvement have been well stated by Ferriss:¹

The curriculum should meet the needs of the pupil, the community, and the nation. These needs should be determined on the basis of the demands upon the individual in his participation in the activities of modern life, with reference to the habits, abilities, knowledge, attitudes, and ideals required. Briefly stated, these demands are probably to be found in an analysis of the health, economic, vocational, civic, social, intellectual, recreational, and æsthetic activities of today with the moral-ethical habits, attitudes, and ideals considered as desirable in connection with them.

Proceeding to the problem of constant subjects the same writer says:²

A change in the constants in the curriculums of rural and semi-rural high schools is to be desired. The constants should not be those subjects ordinarily required for college entrance, but rather those subjects possessing greatest values for the citizen of a community in the United States. They should be those subjects, or speaking more accurately, that subject matter of greatest value to all, as shown by an analysis of the demands made on the individual by the everyday activities of present-day life.

¹ Ferriss (6), p. 71.

² Ibid. p. 72.

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On this basis the constant subjects, those required of all pupils of a four-year high school, would be some such group as the following: English, community civics, general science, American history and government, economics and sociology, physical education and health, and extra-classroom activities.

Among the first of the variable or elective portions of the program to be made available should be those affording training for the two major occupations represented: farming and home-making. This need is disclosed in the distribution of occupational destinations found in studies of graduates of rural high schools. For example, Dolch reported that out of 81 boys graduated over a period of thirty years from a small high school in Illinois not near any large city, 27, or just a third, were farmers. Of 133 girls 86 were home-makers and 11 others were "at home."¹ This is nearly three fourths for whom domestic responsibilities may be assumed; doubtless others among the girls graduating had such responsibilities. Here are two lines of training continuously represented in the needs of pupils being served by rural high schools.

The statement is sometimes made that boys who obtain vocational training in agriculture do not return to the farm, for which the courses are presumed to afford preparation. We now have evidence to demonstrate that this statement is only partly true. An investigation made of the distribution of almost a thousand graduates of agriculture departments in the high schools of Minnesota shows that 57.4 per cent were farming, and that 8.6 per cent more were either in attendance in colleges of agriculture or in related occupations to which the special training received was to some extent pertinent.² A study by Myers, based on data collected from thirty-seven states regarding persons who left school after one or more years of vocational instruction in agriculture, reports that of

¹ E. W. Dolch (4).

² The writer is indebted to Professor A. M. Field of the Division of Agricultural Education for the data from which this citation is made.

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those whose occupational status was given, 59 per cent, or almost three fifths, were farming and 6 per cent were in related occupations.¹

In stressing the desirability of recognizing the peculiar needs of rural life in this way there is no intent to urge that all training be selected and molded to this single special purpose. The special needs of those who will shift to other walks of life and to urban communities, inclusive of the college-going group, must also, as far as possible, be recognized. The present trend is away from an educational policy that would obstruct the movement of population from the country to the city, or vice versa. Works, for example, challenges as "unsound," from an economic standpoint, "the view that country schools should attempt by a type of education to retain children in the country because it happens to be their place of birth." He goes on to say:²

It must be quite as evident from a social standpoint that it would be unfortunate to use the schools as a means of fixing distinctions based on occupation or social standing. Both society and individual will be served best when education assists each pupil to find the field of social service that he by nature is best qualified to render and provides for him the most effective preparation for that service.

Admittedly recognition of the special needs of both the farm and the non-farm group as is recommended here imposes a large responsibility on the rural high school, one which it cannot always easily carry. But if we are to have an adequate rural secondary education the responsibility must be assumed and, as far as possible, discharged by every institution of the type. The discharge will be facilitated by simultaneous improvement along the lines previously discussed; namely, consolidation, transportation, and junior-high-school reorganization.

¹ Charles E. Myers (13), p. 18.

² Works (19), p. 18.

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QUESTIONS AND PROBLEMS

1. What is the explanation of the retarded state of development of rural secondary education?
2. In what way is the typical preparation of the high-school teacher in subject matter related to the wide range of subjects taught by instructors in rural high schools?
3. Is guidance more essential or less essential in rural high schools than in urban high schools?
4. Is the difference in intelligence between rural and urban children as shown by tests native or environmental?
5. Make a list of the disadvantages of consolidation. Do these outweigh the advantages as these have been set forth above? Do they represent insurmountable obstacles?
6. How is the organization of schools on the district, township, or county basis likely to affect the type of consolidation in a given state?
7. How would the maintenance of different types of school organization in rural and urban territory — that is, the 8-4 plan in the former, and the 6-3-3 in the latter — interfere with the ready transfer of pupils from one to the other?
8. Map out a program of improvement for some rural high school of which you have knowledge.
9. Consider the problem of whether or not the college-going pupils should be the first of the special groups to be recognized in the offering of subjects in rural high schools.

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IX

SECONDARY-SCHOOL ORGANIZATION: VOCATIONAL EDUCATION

I. THE MOVEMENT FOR VOCATIONALIZATION

Types of secondary education not yet treated. Any complete consideration of education on the secondary level must include several types not yet sufficiently recognized in this book. Among these are vocational education (occupational training of less than college grade), special-type high schools, private secondary education, the night high school, etc. The first of these additional types is dealt with in the present chapter; the other types will be discussed in Chapter X.

The need for vocational training. It was shown in Chapter IV, which dealt with aims and functions, that all the authors whose statements are there analyzed set up vocational preparation as one of the goals of the secondary school. The unanimous demand on the part of these leaders for the recognition of occupation in the training program takes cognizance of a *need* for vocational education. This may be expressed in a number of ways, two important ones being (1) the individual's need for a more effective means of livelihood than would be available to him without access to a vocational-training program and (2) society's need for the more efficient service which can be rendered by those who have been so trained.

1. The first of these needs was implied in the recommendation of vocational training as a means of counteracting the influences of elimination (Chapter III). Equalization of educational opportunity requires that those who must leave

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school early shall have an education suited to their special needs, just as do those who continue to collegiate levels of training: if preparation for college is to be made available, so must preparation for those occupations which can be entered without collegiate training. The urgency of this need

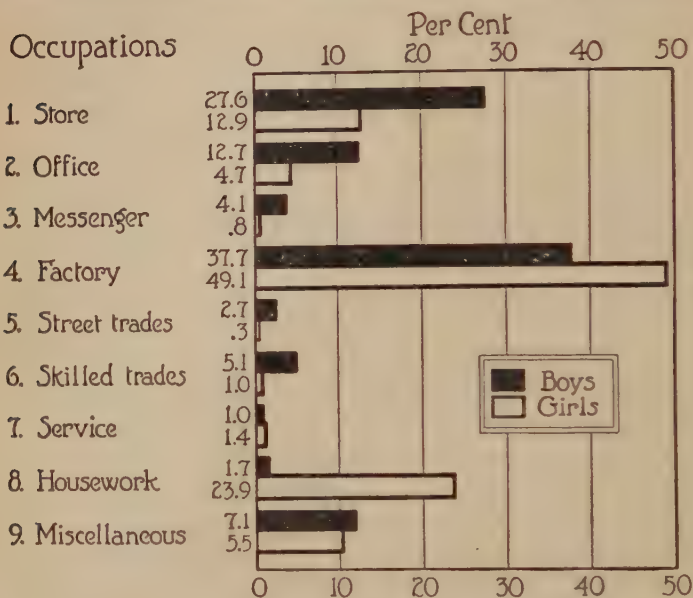


FIG. 44. Percentages of boys and girls fourteen and fifteen years of age in each occupational group

is brought home by data pertaining to the occupational distribution of children who leave school early. Illustrative data along this course of reasoning are those of Hiatt pertaining to children of fourteen and fifteen years of age employed in Philadelphia (see Fig. 44).¹ Of the more than thirteen thousand children dealt with in his study, among whom boys and

¹ James S. Hiatt, *The Child, the School, and the Job*, Study No. 39, Public Education Association, Philadelphia, 1912.

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girls were almost equally represented, the largest single group was at work in factories "where the positions are largely mechanical and require but short time in learning, little responsibility, and great specialization of processes." The next largest proportions were at work in stores and offices "where a few may advance to higher places, but it is evident that a majority must hold low-grade positions which require little preparation or skill." Small proportions "become messenger boys or enter the street trades, which hide insidious dangers even more real than the unguarded machine." A large proportion of the girls are employed in housework at home. Only 5.1 per cent of the boys and 1.0 per cent of the girls enter the skilled industries "which promise to lead to a recognized trade."¹ Hiatt reported also the weekly earnings of these children and concluded that the wages, although they might seem large to young workers, were so low as to force a parasitic life. Moreover, the fifteen-year-olds were earning only slightly more than the fourteen-year-olds, showing no tendency toward ability to earn a competency at maturity.

The usual inference from such data is that these years of employment are "wasted years" — sometimes even worse than wasted. Such a conviction has had much to do with the lengthening of the period of compulsory education (full or part time) in many states and with the provision of educational facilities, especially along occupational lines, for children who are leaving school in these early years. Without these extensions we cannot boast of democratized opportunities for secondary education.

2. But it is not only the trained individual who profits by the expansion of the educational program in vocational fields: society at large should benefit from the increased production and improved utilization that must result from a program adequately conceived and effectively administered. The benefits to society derived from provision for training in

¹ Ibid. p. 5.

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professional fields have long been conceded ; otherwise we should not now have the well-supported schools of medicine, law, engineering, agriculture, commerce, and the like, or the special facilities in secondary schools offering preliminary preparation for the work in professional schools. These provisions could never have been brought to their present state of development without social justification rather than strictly individual justification. There is a growing conviction that much advantage will accrue to the community at large from suitable training programs, on somewhat lower levels, along industrial, agricultural, commercial, and domestic lines. The needs of both the individual and the community appear to be equally fulfilled by vocational training.

The development of facilities for vocational training. Consciousness of the needs referred to and doubtless other motives, space for review of which cannot be taken, have stimulated development of facilities for vocational training. The introduction of commercial courses into its offerings was the high school's most notable occupational expansion before the opening of the present century. There were also, in the later decades of the nineteenth century, occasional offerings in the practical arts, assumed at the time to be vocationally significant. Manual training, for example, made its appearance in the eighties, sometimes in separate high schools known as "manual-training high schools," sometimes as offerings in high schools already in operation. It had its earliest advocacy on vocational grounds, but there was a remarkable shift in this regard, and its place in the curriculum is now not often supported by any direct bearing it may have on vocational preparation. Without doubt, however, there are still those who have not been thoroughly disillusioned on this score. Since the opening of the twentieth century and before Federal stimulation under the Smith-Hughes Act, a number of technical and other high schools had taken steps toward genuine vocationalization.

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The beginnings referred to do not include a number of early provisions of vocational education (other than the time-honored trade apprenticeship) which, with those already described, provided the precedents and laid the foundations for the more recent rapid development of facilities for vocational training on the secondary-school level. Among these were separate trade schools (full or part time), maintained as parts of school systems, under private auspices, or in industrial plants.

Rapid development under Federal aid for vocational education. In 1917 the Smith-Hughes Act, providing Federal aid to the states for vocational education, was passed by Congress and became a law. Its passage came after several years of effort in its behalf and with the support of labor, of industrial interests, and of a national society for the promotion of industrial education. The act requires that every dollar distributed by the Federal government is to be matched by an additional dollar appropriated by the state or the local community. Moneys thus allotted and matched by the states are to be expended only for the salaries of teachers of subjects pertaining to trade and home economics and of teachers and directors of agricultural subjects, and in training teachers of these subjects. Buildings and equipment must be provided by the state or the locality. The provisions for financial aid were not extended to commercial education.

Expansion of education under the Smith-Hughes Act has been rapid indeed (see Fig. 45). During the six years of its operation up to and including 1925, the enrollment in all types of federally aided schools rose to about two thirds of a million, and the three types of schools, evening, part-time, and all-day, enrolled by 1925, respectively, 190,388, 319,020, and 146,094 in both sexes.¹ From 1918 to 1923 the total expenditure under the law for all types of vocational schools, not including teacher-training institutions, rose from ap-

¹ (48), p. 36.

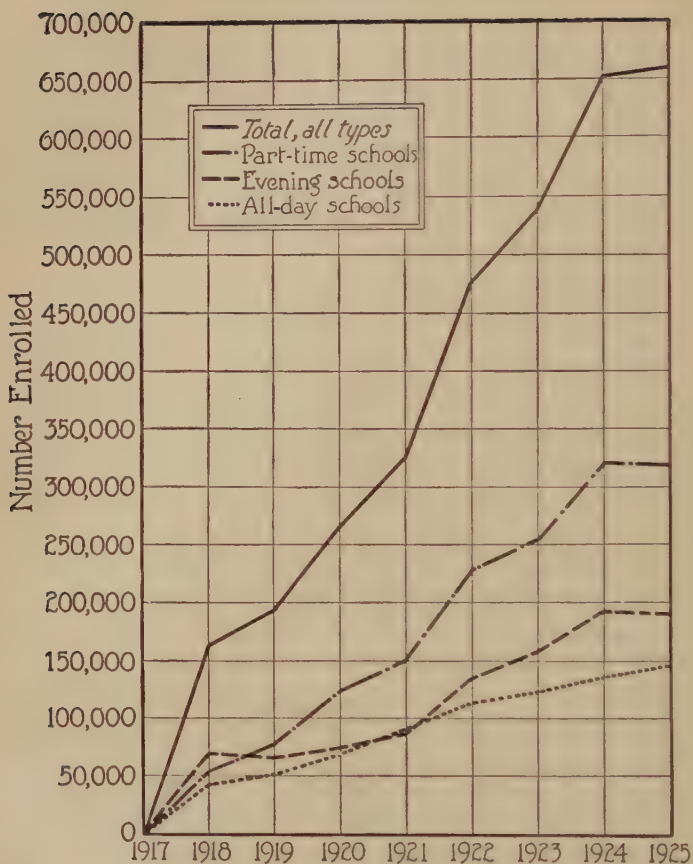


FIG. 45. Enrollment in federally aided schools, by type of school, by years from 1918 to 1925. (After (48), p. 30, Diagram X, with additions to 1925 from (16), pp. 144-145, Table III)

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proximately \$2,600,000 to almost \$15,000,000. Of the latter amount somewhat more than half was from local sources, the remainder coming from state and Federal sources combined.¹ This is nothing short of an astounding development and justifies the more extended consideration to be accorded each of the several types.

II. THE TYPES OF VOCATIONAL EDUCATION

Full-time trade courses. A number of schools are providing training on the full-time basis for trades or other industrial occupations. Among these are high schools, technical high schools, and vocational or trade schools under a variety of public auspices, private trade schools conducted for profit, schools in industries, and so on. No comprehensive study of the present state of development of such work has been made; hence it is impossible to report adequately upon its extent and variety. It is possible, however, to report on the extent of provision of federally aided day-unit trade courses, which are short-unit courses of the intensive type; that is, in such courses students are given intensive occupational training over short periods, rather than over a period of years. This is shown in Fig. 46. These data do not include the less intensive long-course offerings in those forms of trade and industrial training which the Federal administration does not foster, but which are sometimes supported wholly from state or local funds. Additional information as to the extent of the federally aided training is to be found in the fact that by 1923 the total enrollment in the courses was more than 34,000, all but about 6000 of them boys. These courses are made available in a variety of types of institutions, — high schools, technical high schools, trade or vocational schools, junior high schools, and certain other special types, — but most frequently in trade or vocational schools and high schools.

¹ (48) p. 16.

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Part-time coöperative courses. There has appeared in recent years a type of provision for vocational education the major feature of which is coöperation between school and industry. The precedent for the type was set by Dean Schneider,

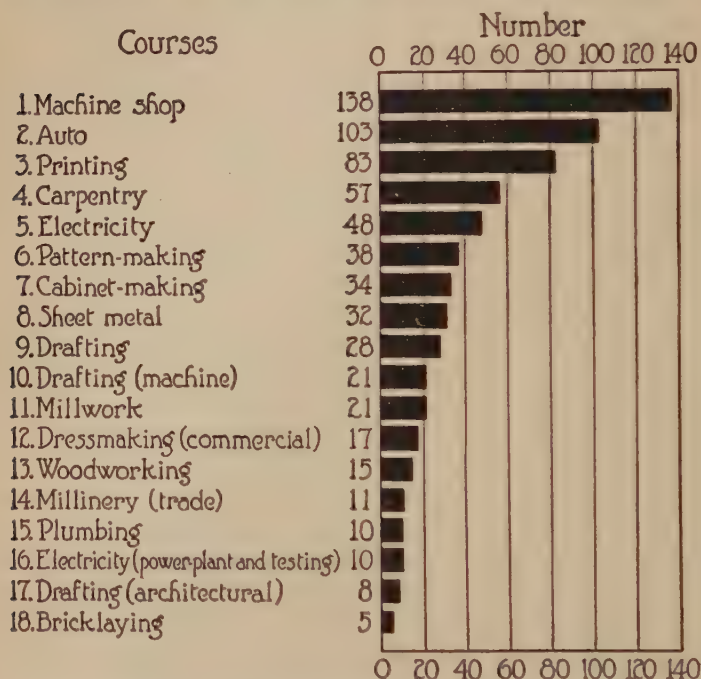


FIG. 46. Numbers of principal day-unit trade courses in the United States, 1924. (Adapted from (10), p. 4)

who first put it into operation on an extended scale in engineering courses in the University of Cincinnati in 1906. The first application of the plan on the secondary-school level was that in Fitchburg, Massachusetts, where it was instituted in 1908. According to the plan now in operation there a boy spends two years in full-time high-school work in

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English, arithmetic, algebra, civics, and free-hand and mechanical drawing. To test out his interest and capabilities under actual working conditions he spends a preliminary summer in the shops of the industry which he plans to enter. During the next two school years he spends alternate weeks in these shops, under working conditions, and in the high school. Among the subjects in the curriculum during part-time years are English, economics, shop mathematics, physics, chemistry, mechanics of machines, free-hand and mechanical drawing, and physical training. This list of subjects cannot show the practice of relating the content to the work done by pupils in the plant. Each boy is paired with another who is at work in the industry during the weeks the first boy is in school and who is in school during the weeks the first boy is in the industry. For the weeks they were at work in 1922 the boys received pay at the following rates per hour: third year, 20 cents; fourth year, 25 cents. Other details of the plan are the signing of an agreement by parents and manufacturer, the employment of a director who supervises and coördinates the school work and shop work, and the participation by the boys in the athletic and other social life of the high school.¹

The coöperative plan has commended itself to other communities, and a considerable number have adopted it, although they have not followed it in all minor details. In 1923 Miss Turner included reports from twenty-three coöperative courses in secondary institutions, among them the Industrial School of Beverly, Massachusetts, the Southbridge Vocational School in the same state, the Haaren and Newtown high schools in New York City, the Technical High School and the Trade School in Providence, Rhode Island, the high schools of Cincinnati, and the high school at York, Pennsylvania. The advantages of the plan have been well epitomized

¹ Description based on Matthew R. McCann (24), on Jennie M. Turner (45), pp. 248-251, and on correspondence.

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by Bawden, whose summary, with some omissions of less important items, is quoted here :¹

1. The safeguards thrown about young people in their places of employment, through the supervision exercised by the school and the coöperation of employers, show an almost unbelievable improvement over the conditions hitherto characterizing the employment of minors in many places.

2. The coöperative plan makes it possible for some boys and girls to continue in school, because of wages earned on half time. . . .

3. The plan would doubtless induce some to remain in school because the school work is thus made more interesting and the student can see a more direct relation between schooling and the promotion of his own interests. . . .

6. The opportunity to engage in gainful employment on half time, under suitable auspices, has a definite prevocational [exploratory] value, assisting young persons to discover their tastes and probable aptitudes.

7. The successful operation of a coöperative school or class affords a convincing demonstration that a reasonable amount of work, under proper conditions, can be made to contribute definitely to the development of youth, instead of being . . . a demoralizing, disheartening, and stunting influence.

8. The plan gives the student, at the very least, a foothold in some industry or occupation so that he does not feel lost when the time comes to leave school and take up the responsibilities of self-support.

9. It should be emphasized that this plan does not neglect the need for general education, but insures each individual an amount of cultural and liberalizing education sufficient to serve as a foundation for further study if he finds it possible to continue his education. . . .

To this impressive list of advantages may be added, for those instances of its operation in high schools, the democratizing influence of bringing together in the same institution those who are receiving such training and those who are pur-

¹ William T. Bawden (4), pp. 4-5.

suings other high-school work. A difficulty of the plan is that in actual practice "the conditions which make for the most efficient production do not make for the most efficient instruction."¹ In common with the full-time trade courses it has a limitation: because of the tendencies to specialization in industry it cannot take care of the vocational-training needs of all those who will enter industrial pursuits.

Corporation apprentice schools. Another type of training for trades on the secondary-school level is that often maintained for apprentices by corporations. Schools differ as to the proportions of time given to instruction and to work in the plant. There is variation from school to school also in the duration of the periods of apprenticeship. One writer, reporting in 1921, listed fifty-seven corporations as maintaining apprentice schools.² Miss Turner received reports from thirty-three such schools enrolling a total of more than 3000 apprentices, the numbers ranging from 5 to 960.³ Other corporations failed to report on the numbers enrolled. The data cited do not include apprentice schools of railroad companies, of which there are a number. Some of the occupations for which training is provided are machinist, die and tool maker, pattern-maker, draftsman, electrician, and electrical tester, molder, founder, sheet-metal worker, carpenter, printer, and telegrapher. These apprentice schools do not comprehend, of course, all industrial training afforded by corporations, since the highly skilled occupations listed above include only a small fraction of all the occupations represented, most of which are semi-skilled or only slightly skilled. For the latter much briefer periods of training are sufficient.

The objection usually registered by those who criticize the corporation apprentice-school idea is that the employer cannot take a sufficiently disinterested attitude toward the train-

¹ Charles A. Prosser and Charles R. Allen (31), p. 226.

² Carl D. Davis (8), pp. 117-118.

³ Turner (45), pp. 397-399.

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ing to assure that the best interests of the minor apprentice will always be conserved: there is the danger of exploitation of the apprentice. This challenge has been put forward not only by representatives of labor but also by others who have the interests of youth and society at heart. If such schools are properly conducted they should be beneficial to all interests concerned; namely, the apprentice, the employing corporation, and the community at large.

Meaning of the decline of apprenticeship for vocational education. In a preceding paragraph reference was made to the fact that full-time trade courses and part-time coöperative courses cannot take care of the vocational-training needs of all those who must enter industrial pursuits. This is a consequence of the advent of machine production and its accompanying specialization of occupation, because of which the handicraft stage in industry is passing away. This tendency may be clearly seen in the following ratios worked out by Douglas¹ between the numbers of apprentices and the numbers employed in manufacturing and mining in the United States for certain census years from 1860 to 1910:

YEAR	RATIO
1860	1 to 33
1880	1 to 87
1890	1 to 62
1900	1 to 88
1910	1 to 98

The extent to which specialization prevails with us may be appreciated in part from the results of an investigation referred to by the same writer, in which it was found that in 189 plants in twenty industries in Chicago 31.1 per cent of the employees were unskilled, 41.2 per cent were low-grade skilled, and 27.7 per cent were high-grade skilled. The low-grade skilled were those "who could pick up their work in a few days. Over two thirds of [all] the workers could,

¹ Paul H. Douglas (11), p. 74.

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therefore, be regarded as practically unskilled.”¹ The significance for vocational training of this momentous shift is recognized by the same writer. He says:²

... The division of labor was the real destroyer of apprenticeship. Industry developed so many subdivisions that all-round training was both expensive and useless. This same obstacle confronts any scheme for industrial education today. Many loose-thinking advocates of vocational education have ignored this fact and have assumed that there is a limitless demand for skilled workers. Such is not the case. Modern industry does not require a large percentage of all-round skilled workmen. The vast majority of jobs can be learned in the space of a few days or, at the most, in a few weeks.

The “vestibule” school. Two notable adaptations of training to the needs of the new industrial situation have been made. They are (1) the provision of organized facilities for training within the industry itself and (2) the expansion of our public educational facilities to include day and evening part-time continuation classes. However, it should be stated that provisions of the second sort, as will be seen, have been made with a wider concept of function in mind than industrial training in the restricted sense only.

It is safe to say that there is no industrial plant of any size which does not afford preparation of some sort for newly inducted inexperienced employees. This, when not organized, may be by direction, by suggestion, or by help from foremen or others. In recent years there has been in many plants a shift from “pick-up” methods of training on the job toward organized schools or departments that undertake systematically to train new employees for their tasks or to train others previously employed who are transferred from one task to another requiring different skills. These schools are often referred to as “vestibule” schools. Some notion of the rapidity and recency of this development may be gained from data

¹ Ibid. p. 119.

² Ibid. p. 109.

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concerning the membership of business concerns in the National Association of Corporation Schools, which increased in number from 37 to 146 in the seven years from 1913 to 1920.¹ As stated by Douglas, these figures are "not a complete index of the actual number of corporation schools," but they do show "a heightened interest in the general idea of corporate training for employees."² Among the number are some which have provided the apprentice schools referred to above or which have provided both this type and the special intensive type here being considered.

The continuation school. Although the continuation school is far from exclusively vocational, nevertheless it has such important relationships to industry that it may appropriately be dealt with under this head. Even though much of the work is general, the fact that the continuation program has been instituted for those who are employed is enough to warrant its consideration here. The precedent for development of continuation education in this country was afforded by Germany, whose provisions for such schools were mentioned in Chapter VII.

This type of education has had a rapid development in America in recent years; in fact, its growth has far exceeded that for all-day vocational schools (see Fig. 45). For purposes of consideration it may be divided into (1) part-time education and (2) evening continuation education. The first of these has been made compulsory in a number of states. It is designated as "part-time" because the young worker to whom the law applies is released for school attendance during a minimum number of working hours. Evening continuation schools usually serve older workers, especially in states making part-time attendance compulsory for younger employees. It is doubtless already apparent that the stimulus of Federal aid accounts for the rapid recent growth of continuation education. It likewise had much to do with the rapidly increas-

¹ Douglas (11), p. 215.

² Ibid.

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ing prevalence of compulsory part-time laws in the states. Before 1919 only two states — Wisconsin (1911) and Pennsylvania (1915) — had enacted such laws; but during the two years 1919 and 1920 and shortly after the Smith-Hughes Act became operative, sixteen more states enacted them. By 1924 the total number of states having continuation laws in operation was twenty-seven, of which only six were not compulsory in the sense (1) of requiring districts with certain minimum numbers of children falling in part-time classifications to maintain continuation work and (2) of requiring attendance within certain age limits.¹ The most common practices are to require attendance of employed children from fourteen to sixteen years of age or from fourteen to eighteen, and the number of hours per week of required attendance ranges from four to eight, with the two most frequent requirements at these two extremes.

The nature of the work done can be judged to some extent from the distribution of classes by type of work in nineteen cities as reported by Harry B. Smith, whose data are presented in Table XXIX. The purpose of trade-extension classes is

TABLE XXIX. NUMBERS OF CLASSES AND NUMBERS OF PUPILS IN PART-TIME SCHOOLS IN NINETEEN CITIES GROUPED BY THE TYPE OF WORK DONE ²

TYPE OF WORK	CLASSES	PUPILS
General continuation	918	7,044
Trade-extension	237	3,884
Trade-preparatory	202	5,522
Trade-finding	470	2,182
Home-making	304	4,071
Commercial	227 ³	3,293
<i>Total</i>	2,358	25,996

¹ Lynn E. Stockwell (41).

² Adapted from Tables XLI and XLII in (27), pp. 91-92.

³ No report from two cities.

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assumed to be further training for the work in which the pupil is employed; the purpose of trade-preparatory classes is training for work which he plans to enter. The names of the remaining types are somewhat more self-explanatory. These names are doubtless not always completely representative of the content included; but they are sufficiently so to afford assurance of the approximate accuracy of interpretations based on them to the effect that by far the most frequent type is general continuation training, that the next most frequent type is trade-finding and home-making, and that trade-extension, trade-preparatory, and commercial classes follow these with frequencies almost equivalent.

TABLE XXX. NUMBERS IN A TOTAL OF TWENTY-TWO CITIES IN WHICH CERTAIN SUBJECTS ARE OFFERED IN PART-TIME CLASSES ¹

(Only subjects appearing four times or oftener are reported)

GROUPS AND SUBJECTS	NUMBER	GROUPS AND SUBJECTS	NUMBER
<i>General-education subjects</i>		Auto mechanics	6
English	19	Pattern-making	4
Civics	19	<i>Technical and related subjects</i>	
Hygiene	16	Mechanical drawing	10
Arithmetic	13	Shop mathematics	7
General mathematics	6	<i>Home-making subjects</i>	
History	6	Sewing	10
Commercial geography	6	Cooking	8
Spelling	6	Millinery	6
Current events	4	<i>Commercial subjects</i>	
Writing	4	Typewriting	12
<i>Trade subjects</i>		Bookkeeping	10
Electrical construction	12	Salesmanship	7
Drafting	12	Business practice	5
Machine shop	10	Office-training	5
Woodworking	10	Stenography	4
Printing	10	Business English	4
Sewing	7	Business arithmetic	4
Cooking	6		
Millinery	6		

¹ Adapted from Tables LXII-LXVI in (27), pp. 133-137.

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Subjects and subject groups offered, as shown in Table XXX, are also significantly descriptive of the movement. This table does not include a wide variety of subjects which are offered in fewer than four cities.

The objectives of continuation schools and classes are, like those of other types of schools, not always definitely formulated. They are in part to be inferred from the types of work done, as these have already been reported. There is, nevertheless, a good deal of overlapping of acknowledged purpose among these types. For instance, although more often than otherwise the general continuation classes aim at "improving general education" and "improving citizenship," in some cities they are reported as "caring for trade needs," affording "prevocational help," and also sometimes striving for "mixed objectives."¹

The esteem in which part-time education is held by educational leaders as an element of a complete program of secondary education may be seen in the following summary of recommendations of the Commission on the Reorganization of Secondary Education as made in a special report dealing with the subject:

1. That all those types of part-time work which meet the needs of the community be incorporated into the high-school organization as early as possible.

2. That a department of vocational guidance, including employment supervision, be established in every high school.

3. That the establishment of continuation education be made compulsory.

4. That continuation attendance be made compulsory up to the age of 18, exception being made for those who have completed the secondary-school course.

5. That the continuation group be administered as a part of the high-school system.

6. That attendance at continuation classes be required for not less than 8 hours a week or 320 hours a year.

¹ (27), pp. 255-259.

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7. That continuation education be sufficiently comprehensive in scope to include all seven of the objectives set forth by this commission.¹

8. That attendance at continuation classes be in the day time and be counted in the legal hours at which minors may be employed.

9. That in cities and towns having only one high school, the continuation group be located in that school.

10. That in cities having more than one high school, the continuation group be located in that school, or other schools, whose location is favorable, instead of establishing separate continuation schools.²

The significance of continuation education as a part of a democratic school system must be apparent without argument. It is emphasized in the following brief quotations from two important treatments of vocational education. Prosser and Allen say :³

The strongest advocates of the full-time day [vocational] school, whether coöperative or non-coöperative, must admit that it can never become a serious factor in promoting the broad aims of vocational education. . . . This is not because such schools cannot do good work and have not, in many cases, done good work. It is because at no time can they reach more than a very limited number of people. They can only deal, in fact, with the margin between the group that goes to high school on the one hand, and the group that goes to work on the other. This margin is small and must always be small. Hence, far more important from the standpoint of the welfare of democracy are the extension schools which deal with the great mass of people already employed.

To Douglas "the whole movement . . . is a most significant step in the abolition of the break between school and industry and in extending partial educational control over the child for an additional period of time."⁴

¹ See Chapter IV of this book.

² (26), p. 19.

³ Prosser and Allen (31), pp. 230-231.

⁴ Douglas (11), p. 265.

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Vocational agriculture. The importance of training in agriculture for the occupation of farming was emphasized in the chapter dealing with the problems of rural secondary education. There it was in effect contended that training for farming was warranted by the fact that it is one of the two dominant occupations in rural territory (the other being home-making), because a large proportion of boy graduates of rural high schools return to the farm, and because a large majority of those who have taken the courses in agriculture are at work on farms.

A good deal of progress in vocational agriculture in high schools had been made before the passage of the Smith-Hughes Act in 1917. This does not mean that all the states had made long strides in this direction, but that much had been done in a number of states. For instance, under an act passed by the Minnesota legislature in 1909, ten high schools were subsidized to introduce three lines of training — agriculture, home economics, and shop work. During the first year of operation the enrollment in courses in agriculture was 266. The intent of this work was vocational, although this purpose was not always fulfilled during the earlier stages of development. During succeeding years the number of schools offering vocational agriculture was increased, until in the fall of 1916, the year before the passage of the Smith-Hughes Act, one hundred and fifty-six high schools maintained such departments. During this school year there was a total enrollment of 5350 in specialized courses bearing such names as field crops, animal husbandry, farm mechanics, soils, horticulture, dairying, and farm economics. This represents more than a tenth of the total enrollment in state high schools for the year, which was almost 46,000.

The growth of vocational agriculture under Federal subsidy in the country as a whole is shown in the increase in this enrollment from 15,453 in 1918 to 86,355 in 1925 (see Fig. 47). Considering that this has been a period of financial stringency, especially for the farmer, this is a notable growth.

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Most of this enrollment was in all-day courses; but during the last few years of the period it included the number in short-unit, part-time, and evening courses, the last-named being designed for adult farmers. Most of this growth under Federal aid has been in high-school departments, although there has been some growth in special schools of agriculture.

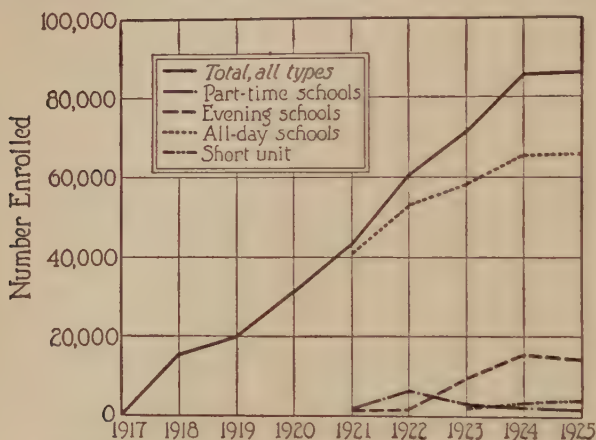


FIG. 47. Enrollment in federally aided agricultural schools by years from 1918 to 1925. (From (48), p. 53, Diagram XVI, with additions to 1925 from (16), pp. 144-145, Table 3)

The pupils in the all-day agriculture departments devote from 90 to 180 minutes per day to the work in agriculture and the remainder of their time is spent in pursuing academic subjects of the high-school program of studies. . . . In addition to the school instruction there must be, under the provisions of the Federal vocational education act, at least six months of directed or supervised practice in agriculture. In most states this takes on the form of "home-project" work . . . and . . . has been quite generally accepted as the most effective type of vocational instruction for youth from 14 to 18 years of age who are attending high school and at the same time maintaining close contact with the home farm.¹

¹ George A. Works in *United States Bureau of Education Bulletin No. 19* (1923), p. 4.

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Home economics. As in the case of agriculture, there had been a significant development of home economics in a number of states before the Smith-Hughes Act went into effect in 1918. The growth under the provisions of this act is shown

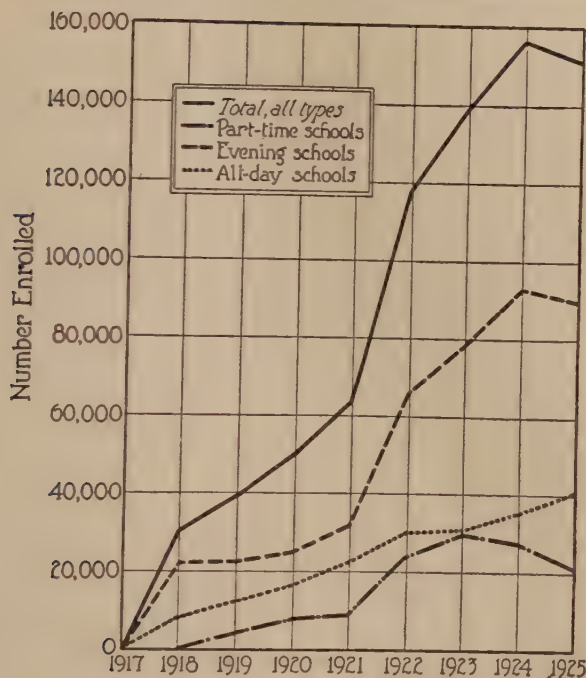


FIG. 48. Enrollment in federally aided home-economics schools by years from 1918 to 1925. (From (48), p. 297, Diagram XXVII, with additions to 1925 from (16), pp. 144-145, Table 3)

in Fig. 48, the enrollment in all types (all-day, part-time, and evening) beginning with 30,799 in 1918 and reaching 151,074 by 1925.

The growth during the period covered might have been much more rapid than this, if just before the passage of the

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act the words "home economics" had not by a parliamentary maneuver been inserted between the words "trade and industrial" in every section of the measure applying to "trade and industrial subjects," so that all the provisions of these sections now apply to "trade, home-economics, and industrial subjects."

As a result, home economics education under the act has been administered . . . under mandatory regulations well designed for trade and industrial schools but entirely unadapted to home-making subjects. . . . As no additional appropriation was made to compensate for the introduction of an additional field of vocational education into the law, trade and industrial education has been required to share its fund with home economics education. This has deprived the former of the same or equal support as agricultural education which was planned in the original bill and given the latter funds entirely inadequate to meet the growing demand for the training of home-makers, particularly through extension classes for those already employed in homes and in wage-earning pursuits.¹

That training for home-making in public schools is not limited to training going forward under Federal subsidy may be seen in the fact that the total enrollment of girls in home economics in public secondary schools in 1921-1922 was 304,981,² which is equivalent to 25.5 per cent, or more than a fourth, of all girls enrolled in these schools in that year. By contrast, the enrollment under the Smith-Hughes provisions in 1922 was 118,708, of whom 28,987 were in all-day schools.

Those conversant with the field are aware that certain of the leaders in home economics prefer to have the usual home-making courses in the high school looked upon as general education rather than as vocational education. There is doubtless a good deal to be said for this view — enough to warrant its retention. On the other hand, in an undeniable

¹ Prosser and Allen (31), pp. 455-456.

² Statistics of Public High Schools, 1921-1922, *United States Bureau of Education Bulletin No. 7* (1924), p. 58.

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sense it is appropriate to look upon it as vocational, since, if the training is valuable, it should be helpful in the discharge of the responsibilities of the home-making occupation, into which sooner or later most women are drawn. For these this training is as vocational as is the work in preparation for trade dressmaking for the group entering this particular occupation. It is in this sense that the enrollment in courses in home economics available in the usual high school has been referred to in this discussion of vocational training.

Education for business occupations. It was reported in Chapter I that certain commercial subjects were the first of the nonacademic branches to be adopted at all frequently as high-school offerings. This was decades before the opening of the present century. Since that time these subjects have assumed a prominent place in the high-school program of studies, as may be seen in the following totals of enrollment in certain commercial subjects reported for the year 1921-1922 by the United States Bureau of Education:¹

Bookkeeping	270,517
Shorthand	191,901
Typewriting	281,524
Commercial arithmetic	31,688
Commercial law	19,611
Commercial geography	36,616
Commercial history	8,307
Penmanship	36,667
Other commercial subjects	28,248

The significance of these large enrollments becomes more apparent if one bears in mind that the total enrollment reported for public high schools in the same year was 2,155,460. Some notion of the rapid increase in recent years may be gained by reference to the enrollment in 1915 of 39,816 in bookkeeping, the first subject named in the list. It is worth remembering,

¹ Statistics of Public High Schools, 1921-1922, *United States Bureau of Education Bulletin No. 27* (1924), p. 47.

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too, that the rapid increase during this interval of years was not directly stimulated by Federal aid, as was the case with trade and industrial education, agricultural training, and to some extent even home economics. The expansion as reported does not include commercial work in part-time and evening continuation schools and classes, which has been touched on in an earlier section, nor night high schools which sometimes offer work of this nature.

Commercial education of secondary-school grade is also being provided under private auspices. While, as Lyon has shown,¹ training of this sort under public control has gained at a much more rapid rate than that under private control, the numbers of schools and students enrolled in private commercial schools is still large both in gross and relatively. Between 1900 and 1918 the number of schools reporting to the United States Bureau of Education² increased from 373 to 890. The number of students reported increased from 91,549 to 289,579, or more than three times the number for the earlier year. Of the 1917-1918 enrollment 182,614 were in day schools and the remainder, more than a third of all, in night schools. The distribution of this enrollment by courses was as follows:

COURSE	NUMBER ENROLLED
Commercial	69,520
Stenographic	152,402
Combined	48,481
Telegraphy (wire)	4,915

These data do not include enrollments in commercial courses (1) in 110 denominational and Y.M.C.A. schools, which totaled 19,056 in the same year, and (2) in private high schools and academies. To illustrate the enrollment by subjects in the latter group of institutions it may be reported that 18,488 students were taking bookkeeping and 22,011 were

¹ Leverett S. Lyon (23), pp. 1-3.

² *United States Bureau of Education Bulletin No. 41* (1919), p. 5.

taking typewriting, the two subjects which had the largest total registrations of students.

The total number of students pursuing commercial subjects is therefore very large. It is doubtless incorrect to assume that the vocational motive is operative with all who are enrolled. The proportions not motivated on vocational grounds are perhaps larger for public high schools, private high schools, and academies than for the private commercial schools. This motive must, nevertheless, be the dominant one in all groups, and it is therefore appropriate to include this work, as is here done, in describing the extent and types of vocational education.

Other opportunities for occupational training of secondary-school grade. Among the branches of occupational training may be mentioned the opportunities for specialization in music and the other arts occasionally afforded in large high schools. This specialization sometimes turns out to be in the nature of vocational preparation. Up to 1923-1924 curricula in preparation for rural-school teaching were set up in the high schools of twenty-three states. In four states this work is open only to high-school graduates and is thus administered for students on a level above that of the traditional secondary school.¹ This is a level equivalent to that of training for the semi-professions referred to in Chapter VII in discussing the junior college. In other states the requirements for entrance to the work are either two or three years of high-school work. Reference may be made here also to preparation for college, which was referred to in Chapter IV as analogous, for those who go on to higher institutions, to occupational training for those who do not continue beyond the high-school level. Although somewhat appropriate, it is not customary to regard this type of specialization as falling within the field of occupational education.

¹ Mabel Carney (6).

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III. PROBLEMS OF VOCATIONAL EDUCATION

The lines of vocational training. School authorities undertaking the establishment of a program of vocational training at once face a number of important problems, some of which will be briefly reviewed here. One of these pertains to the occupations for which training is to be provided. For what occupations or groups of occupations shall the school or system set up training programs? It is apparently unwise to proceed without careful study of the situation. One method used in this connection is a study of the occupational choices of pupils. An instance of this was Ayres's study of occupational choices of all thirteen-year-old pupils in Springfield, Illinois.¹ The nature of the data resulting from a study of occupational choices has been illustrated in that part of Chapter III dealing with the interests of secondary-school pupils, although the particular study drawn upon was not made with a view to determining the lines of occupational training to be provided. Among the inadequacies of this as the *sole* method of investigation is one pointed out by Ayres himself in reporting his study, that aspirations of youth are often far beyond the realizations of maturity. Related to this is the large proportion of young people whose choices change as they grow older.

Another method is that of surveying the occupations of the community for the purpose of locating those for which training is practicable and should be provided. This method is now in frequent use. In connection with some of these surveys a study of the extent of migration of the population has been included. Where the population is found to be a rapidly shifting one it seems desirable to select for early recognition in the vocational program the occupations represented in many communities and over wide areas; where the shift of population and the turnover of workers are not too great it

¹ Leonard P. Ayres (3), chap. xiii, pp. 123-140.

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should also be possible to recognize the dominant occupations of the community even when, as is sometimes the case, they are somewhat peculiar to the community concerned. Although this method is preferable to that of endeavoring to map out the vocational program on the basis of occupational choices, it is even better to give consideration to both. Some combination of both procedures would more nearly assure us a joining of the needs and interests of the individual and of the community of which he is a member.

In considering this problem of the broad fields in which occupational training should be provided, it is pertinent to mention that home-making is common to *all* communities, that business occupations engage the interests of large proportions of the population in all but the smallest communities, and that agriculture is a chief occupation in all rural communities.

Make-up of vocational training. A second important problem of vocational training concerns its make-up. This problem may be thought of as having two aspects, corresponding to the two questions Of what shall it be constituted? and Where shall it appear with respect to the period of general training? The content of vocational training is more frequently than otherwise classified under two heads: (1) that which is intended to give the *skills* needed and (2) that which provides the *related knowledge* necessary for the most intelligent application of the skills. It is inexplicable that the specialists in vocational training, especially in trade and industrial subjects, have not more often proposed a third constituent in the way of (3) *the social and economic knowledge peculiar to an occupational group*. This constituent is much less often omitted from the training programs in other fields. For instance, those who propose curricula in the preparation for farming often urge that in addition to skill in actual farming operations and the necessary knowledge of agriculture and the related sciences, the farmer needs special under-

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standing of the problems of rural social and economic life — an understanding in excess of that required of the non-farming population. Some understanding and appreciation of the problems of rural life are required of all of us as intelligent citizens, but the farmer has need of more intensive knowledge in this field. Similarly, although all of us have need of some understanding and appreciation of the social and economic problems of trade and industrial life (for example, the history and service of labor organizations), the worker in industry has need of intensive knowledge in this field *in excess* of that required by those in nonindustrial employment. Perhaps those who propose the first two constituents named have it in mind that this type of training would be included on the rim of the related information or as a part of general civic training. If so, exception need not be taken on this ground to their proposals. The essential thing is that this special need be recognized in the training program.

The methods of determining the specific content of vocational-training programs now generally recommended are trade analysis or job analysis. Although their respective advocates see what they believe are vital differences between the methods, they have in common the characteristic of observing the occupation itself to find the things done, which are in turn the activities in which training is to be given. It is possible also while making the analysis to note the related information pertinent to the activity. A large amount of such analysis has been done, more particularly in the fields of trade and industry.

Having dealt briefly with the question of what should go into vocational training, we may say a word concerning where this special training should be given with respect to the period of general training. Common sense dictates that special vocational training be taken as late as practicable in the individual's total period of training. This will mean that in large part and for most students it should come after the

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period of general education. Such recommendation, however, does not preclude the desirability of having some training programs arranged to carry the general education and the vocational preparation forward simultaneously, if only we avoid confusion of objectives in these two phases of training. Among curricula which lend themselves to this arrangement are some of those which prepare for home-making, business, and agriculture. Among these also are full-time day trade curricula extending over two or more years and part-time coöperative arrangements with curricula two or more years in length. Within these longer curricula it will be well to have the special vocational preparation more heavily weighted in the later years, and the general education the larger element in earlier years.

When the question is raised as to what should be the order of introducing the three constituents listed above, — namely, training for skill, related information, and social and economic understanding and appreciation peculiar to the occupational group, — answer can be made in relation to the length of the curricula. If these are short and intensive, all three must, of course, proceed simultaneously. In longer curricula there are considerations recommending that the first be placed late in the program. Among these is the need of having the skills fresh for effective application on leaving school. The longer the interval between acquiring and applying the skills, the greater the loss in efficiency. Another consideration is the desirability, from the standpoint of guidance and the selection of the specific occupation within a group of occupations, of delaying the period of learning the specific skills required. One might, for instance, be interested in entering a business occupation, but not be able to decide during the first years of the course whether to prepare for a bookkeeping position or a stenographic position. Whether or not the related information is given simultaneously with the skills must be determined by its immediacy to the acquirement of the skills.

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Some, at least, could come earlier in the curriculum. The third constituent, being peculiar to an occupational *group* rather than to a *specific occupation*, may well come early in these longer curricula.

The problem of separation from general education. A third problem — one about which many wordy battles have been waged — has to do with whether or not vocational education should be administered with general education or apart from it. There are those among the specialists in vocational education who insist on its separation from general education (especially general secondary education), in the belief that the two are so incompatible that their association will obstruct genuine vocationalization. They are opposed by others who believe that the two should be worked out in intimate coöperation. The issue of unified or dual administration may be discussed by considering it under three heads: (1) central control, (2) class organization, and (3) school organization and housing.

1. There is a near approach to general agreement that control should be unified rather than dual, both as to state organization and as to local organization. As concerns state control this is shown in the fact that in most states existing state boards of education were made the boards for vocational education when the states through their legislatures availed themselves of the provisions of the Smith-Hughes Act (p. 303). Control in local school systems is likewise vested in the regular board of education. An outstanding exception is afforded in Wisconsin, which had already in operation before the passage of this act a separate organization including both state and local boards, a plan that was not subsequently modified. To be sure, in the local systems of most other states there are special officers employed to administer vocational education, but they are under the direction of the school board and the city school superintendent. The imperative need to coördinate all educational agencies is so great that even if it is

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sometimes deemed advisable in other respects to encourage separation, it is almost certain that the movement for separate boards will not gain ground.

2. Separation as to class organization for vocational education is, on the contrary, inevitable. Genuine vocationalization cannot be accomplished if those without vocational motive are enrolled in the same subjects and courses, announced as vocational, with those who are seeking vocational training in them. No plea that democracy is endangered by such separation should have a hearing, since the confusion of general and vocational objectives resulting from the presence of both vocational and nonvocational students in the same vocational subject or course is almost certain to obliterate its vocational significance. This does not mean that students in longer full-time vocational curricula consisting in part of general courses may not be enrolled in these general courses with nonvocational students: the proscription applies solely to vocational subjects and courses. Students in all other types of vocational curricula — part-time coöperative, part-time continuation, evening, etc. — obviously must be administered with completely separate class organization from that for the full-time general-school attendant.

3. Against a high-school organization and housing that would endeavor to accommodate both general and vocational education, the advocates of separation have much to say. Perhaps most recurrently they disparage the ability and willingness of those in charge of general academic education to adapt the means of education to the new ends of vocational training. The traditional worker in general education, they contend, is accustomed to rigid academic requirements for admission, academic standards of performance, standardized and traditional content of courses, courses extending over long periods, group methods of instruction, and academic standards of teacher preparation, whereas what is needed for vocationalization is admission on ability to profit by the

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instruction, occupational standards of performance, content of courses diversified and drawn directly from industry, course units extending over short periods, highly individualized instruction, and teachers with vocational experience rather than college degrees.¹ Again, the mingling of vocational with nonvocational students will bring a confusion in which the vocational objective will be lost sight of. Related to this is the argument that "concentration" of the vocational-training program through four to six hours a day of combined practice and related study is not compatible with the high-school organization, and that high schools are not located where the vocational training should be made available, that is, near the places of employment.² In addition it is pointed out that the number of specialized occupations for which training is desirable is so large as to put out of consideration the possibility of providing training for all in a single school organization.

The advocate of a unified organization and the "comprehensive" high school takes exception to the arguments presented by the protagonists of separate vocational education. In answer to the argument on which they rely so heavily, that because of their traditions those in charge of general education are unable to adapt the means of education to vocational ends, he would direct attention to the fact that secondary education has in recent years undergone profound and rapid changes — that it is far from the static thing assumed in the criticism. Several chapters in this volume, among them Chapter I, bear witness to this dynamic tendency. To the contention that a mingling of vocational and nonvocational students will lead to a confusion of objectives and the defeat of vocationalization, he responds by asking whether the separatist would also have segregated schools for other major aims of secondary education; for example, training for civic-social-moral responsibilities, training for physical efficiency,

¹ Prosser and Allen (31), p. 210.

² Snedden (37), p. 336.

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and training for appropriate recreational participations and appreciations. Eaton has aptly said that he confesses "a predilection for concentration without granting that it is the result of segregation."¹ Touching the argument that high schools are not located at points where vocational training should be made available, it may be stated that there were in our country in 1920 only about seventy cities with populations in excess of a hundred thousand. In communities smaller than this, which includes the great bulk of American cities, it would be difficult to locate a high school where it would not be accessible to vocational students. Thus the problem of separate school organization and housing for vocational secondary education seems to be one that for the most part concerns our large cities. Even for these it is hard to see how the ideal of comprehensive high schools is unattainable if the term "comprehensive" is thought of as it should be — from the standpoint of the particular student-constituency or locality, rather than from that of any single institution's comprehending all lines of training, inclusive of all occupational specializations of secondary-school grade. There is no large city the population of which is not distributed more or less sectionally as to economic and occupational levels. By way of illustration the writer has in mind one in which the section inhabited by industrial groups could be served by a high school which would be satisfactorily comprehensive if it provided opportunities for general education and, in addition, emphasized clerical, home-economics, and industrial training, adapting industrial training to several dominant lines of employment which large proportions of the boys of this section enter. Among the types of vocational training made available could be all-day preparation varying in duration and preliminary to entrance to the occupation, part-time coöperative plans, and both part-time and evening continuation plans. The criterion here is that *each high school*

¹ T. H. Eaton (13), p. 268.

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shall be comprehensive for the purposes of the locality it serves, and not in the unacceptable sense as comprehensive of all conceivable lines of specialization. This would afford a partial basis for division of labor among high schools; so that in any large city training could be made available for a considerable number of specialized occupations. It might not, however, preclude the provision of additional separate schools, although the need for them would be somewhat reduced.

Among other considerations supporting a unified secondary-school organization inclusive of vocational education are the need of intimate articulation of vocational education with general education, the necessity for economical organization in providing both, and the desirability of conserving the interests of a democratic society. Unless a good deal, if not most, of our vocational education is made available where provisions for other secondary education are at hand, there will be the danger that the former will tend to be administered independently of the latter, both as to guidance and transfer of students when most advisable for them and also as to articulation in the content of courses in the two types of schools. The argument of economy has been well illustrated by Stuart:¹

... We have the boys in the high schools. The time has passed when we can offer them just academic work. We have to have shops equipped for vocation-finding courses and for preëngineering training. The introduction of vocational work simply means better organized courses. If this same work, however, were to be offered in the city outside of the high school, it would mean the maintenance of two sets of shops and two sets of teachers. . . . A city could not afford two "A plus" sets of equipment and teachers, so one or the other of the sets would be almost sure to be deficient.

The argument of democracy has been repeated so often in discussions of this sort as to make it unnecessary to go over it again at length. It is certain that we must, for the sake of

¹ Milo H. Stuart (44), p. 187.

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a homogeneous society, set up as few barriers to association as possible between those entering the different levels of occupations. Making vocational training available in the same institution in which college preparation is also to be had would be conducive to homogeneity.

One of the best of the arguments on behalf of providing vocational education in the "regular" high school is that *it is being done*. Its feasibility is being increasingly demonstrated, although not as generally as is desirable. At best, however, we need the light of more facts and experience to illuminate the way to final decision. Heretofore the debate has been too much a conflict of unconfirmed opinion with unconfirmed opinion. Perhaps the best judgment that may be ventured in the present state of our knowledge is that the high school should be *one* of the important agencies of vocational education.

Other problems in vocationalizing education. There are many problems of vocational education in addition to the three which have already been discussed. A few more should at least be mentioned. One of these is the recruiting of satisfactory *teachers*. Such teachers should have had both experiential contact with the occupations they have to teach and the kind of training in schools which fits them for the work of instruction. In some fields, especially in the trades, it is hard to find teachers who have this equipment. The difficulty is enhanced by the fact that a good craftsman can earn better pay at his trade than in teaching. It is usually out of the question for teachers of the trades to meet conventional requirements as to college degrees. The best solution of the problem is to select persons with proper experience and personal make-up and, through training during service, to equip them on the side of teaching. In other fields, especially in home economics and agriculture, conventional standards of preparation combined with experiential contact have been more frequently attainable.

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The burden of *costs* of maintaining vocational education cannot be disregarded. Full-time vocational education tends to be more expensive per pupil than general education. Part-time education is less costly per pupil per year. The average for part-time work in a number of cities was found to be from \$32 to \$34 per pupil per year.¹ While this is only a fraction of the cost for full-time courses, the number of pupils involved in any universal plan is so large as to call for a staggering total outlay for the country as a whole. In discussing the problem of support for vocational education, Snedden said, "I have no doubt . . . that society will more and more willingly contribute to the support of these schools, if we can demonstrate that every hour of work done in them for each student is amply worth while."² The outlay is warranted also on grounds of affording equality of opportunity in education to all our youth.

Instituting a program of vocational education precipitates the problem of the proper *distribution* of the population to the training opportunities and to the occupations represented. This calls for a program of guidance, which will be discussed in a later chapter.

Finally, we may mention the attitudes toward vocational education (especially industrial education) of two not disinterested groups: the employers, or "capital," and the labor groups. Organizations of the former have long been known to favor development along these lines. Doubtless advocacy in this group had much to do with the early opposition of labor organizations to industrial training. However, in 1911 the American Federation of Labor took its stand in support of industrial education, at the same time insisting that it be controlled and directed by public rather than by private agencies or corporations. While not all local unions have been thoroughly won over to the attitude of the national organization, they have been enough influenced by it to make it pos-

¹ (27), p. 68.

² Snedden (39), p. 73.

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sible for many school systems to set up effective plans of training. Insistence on public control and direction is vital in safeguarding the interests both of those being trained and of the public itself; and at the same time it affords representation to both the groups which have special interests, that is, the employers and the workers.

QUESTIONS AND PROBLEMS

1. What considerations besides those referred to in section I (pp. 299-302) are to be thought of as supporting a program of vocational training?

2. Make a study of the distribution of occupations entered by those who have left high school before completing the course, and ascertain any significance the data may have for the problem of vocational training.

3. Through reading inquire into the attitude of labor toward vocational education.

4. Make a partial or complete survey of occupations for some community of your acquaintance, with a view to making recommendations as to a program of vocational training.

5. Illustrate the application of the principles which are implicit in the treatment of the make-up of vocational training to such occupations as the machinist's trade or farming.

6. What explanation can be given for the tendency to neglect the social and economic knowledge peculiar to an occupation in mapping out curricula in preparation for it?

7. Is the solution suggested above for the problem of securing teachers for the trades to be accepted as permanent, or is there likelihood that the problem will come in time to be solved by securing teachers with both experiential contacts and relatively high standards of training, as has been achieved in agriculture and home economics?

8. Is it desirable that the rural schools continue to recruit their teachers permanently from high-school normal-training departments? Is there temporary justification for this type of training?

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X

SECONDARY-SCHOOL ORGANIZATION: OTHER TYPES

I. SPECIAL-TYPE HIGH SCHOOLS

The special types found. He who visits high schools extensively, especially in some of our large cities, or who examines the names of long lists of such schools, will occasionally come upon institutions in the naming and establishment of which the intent was to provide some special type of secondary education. Among the names to be found are "manual-training high school," "technical high school," "mechanic-arts high school," "commercial high school," "classical high school," and the like. Perhaps the most common special designations at present are "commercial" and "technical," the latter having in recent years displaced "manual training," which was more in vogue during a decade or two before the opening of the present century.

It is not to be understood that these terms signify any standard type of institution. Those bearing the same name do have some similarity, but variations are so wide as to baffle efforts at definition. The most that can be said is that these high schools usually lay some emphasis on the specialty named, but not to the exclusion of general education or even of other special types of education. The name "technical high school," for example, is applied at one extreme to an institution such as the Boys' Technical High School of Milwaukee, which had its beginning as the School of Trades, shortly afterwards becoming the Public School of Trades for Boys, and a number of years later taking its present name. At its inception, therefore, it was exclusively a trade school,

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but it has more recently taken on the additional function of preparation for engineering colleges. The name is applied at the other extreme to a comprehensive high school in which the technical offering is given some special recognition, the special name being used to call attention to this emphasis rather than to characterize the high school as a whole. Such use of the name is sometimes justified by the appeal it may make to young people who might not otherwise avail themselves of the opportunities of a high-school education.

The technical high school as a preparatory school for engineering schools. The term "technical" has sometimes been applied to high schools whose major function is thought of as preparation for technical and engineering schools and colleges. It is significant to note in this connection that authorities in engineering schools are often indifferent as to whether or not their students have had such preparation, or even indicate a preference for regular academic preparation. This is shown in the following tabulation of responses from fifty-seven schools of engineering:¹

	NUMBER
Preferring technical high-school preparation	13
Preferring academic training	27
Expressing no preference	17
Holding that advantage lies with technical graduate . . .	19
Holding that advantage lies with academic graduate . . .	20
Holding that advantage lies neither way	18

It is not the purpose here to consider the merits of the two kinds of preparation; but inasmuch as the question has been raised, it may be stated that this questionnaire is not a satisfactory method of obtaining an answer to it. The author recalls in this connection the statement of the dean of a school of engineering who said he preferred the high-school graduate who had had four years of Latin. From what we know of the high selective value of this subject, and in view of the tend-

¹ Committee Report on Technical and Vocational Courses of Study, p. 21. Newark High School Men's Association, 1921.

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ency of less capable boys to avoid it and to take work in the industrial arts instead, it should be expected that, on the average, the technical graduate would not do so well in the higher institution. This is because he is less capable, however, and not because of the work he has had. The real test would be in a comparison of the success in schools of engineering and in subsequent employments of boys equally capable who had pursued the different curricula. Such a comparison might even show off to advantage the boy who had pursued the technical curriculum. Any difference would be valid, of course, whether the technical curriculum had been taken in a technical high school or in a comprehensive high school.

Advocacy of the comprehensive high school. The drift of opinion and, to some extent, of practice has in recent years been away from the special-type high school and toward the comprehensive high school. The issues have perhaps been best clarified by the Commission on the Reorganization of Secondary Education, in whose judgment "senior high schools and four-year high schools of the older organizations should, as a rule, be of the comprehensive type. . . ." Reasons given are:¹

1. The well-organized comprehensive school can make differentiated education of greater value than can the special-type school, because it aids in a wise choice of curriculum, assists in readjustments when desirable, and provides for the wider contacts essential to true success in every vocation.

2. It is the prototype of a democracy in which various groups must have a degree of self-consciousness as groups and yet be federated into a larger whole through the recognition of common interests and ideals.

3. It can provide much more effectively for health education, education for worthy use of leisure, and home-making education than can a number of small special-type schools.

4. It renders facilities for needed and desired training more readily accessible.

¹ Summarized from (1), pp. 24-27.

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5. It may be adapted to local needs.

6. It admits of effective organization of curricula. These reasons are closely allied to those given in Chapter IX in urging the unification of the school organization, and they have a very similar purpose. They may be understood to be even more appropriate if the term "comprehensive" is accepted in the same sense as there defined; that is, comprehensive *with relation to the community being served*, rather than in the unacceptable sense of comprising all conceivable lines of specialization. To propose the comprehensive high school in the latter sense would be preposterous.

Boys' and girls' high schools. Somewhat akin to the topic under discussion are boys' and girls' high schools under public auspices. There are not many of these, either in gross numbers or in proportion to all others. It was stated in Chapter VI that only 79 such institutions were reported to the Bureau of Education in 1922.¹ This number is only a little over half of 1 per cent of the total of 14,056 public high schools reporting in that year. For the most part these high schools are in large cities of the East and South. They are usually advocated because they are believed (1) to encourage a singleness of purpose on the part of the student in attendance, thereby encouraging scholarship, and (2) to subtract from the social problems accompanying coeducation. The advantages of coeducational high schools most frequently mentioned are the financial economy effected through bringing together larger numbers of pupils and the normal social situation afforded by the presence of both sexes in a school. Since adult society is made up of both, the best preparation for such adult association is association during the period of youth. Coeducation, we are told, is called for by democracy. Moreover, partial segregation is possible in coeducational high schools by having some class sections enroll only boys and others enroll only girls. It is not likely that segregated high schools will gain in favor.

¹ (10), p. 2.

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II. PRIVATE SECONDARY EDUCATION

Private secondary schools not much studied. Although the student of secondary education will occasionally encounter some treatment of, or data pertaining to, private education on this level, he finds nowhere anything like the comprehensive consideration that is from time to time accorded public secondary education. Despite the fact that we are in the midst of what was termed in Chapter I an "era of public secondary education," with even greater dominance for it ahead of us, private secondary education still maintains a substantial numerical position and, in certain circles, a persevering prestige. It is unfortunate that there has been practically no systematic study of this type of school in its present-day form. The treatment thus far given it in this book, while not negligible, has been in a sense incidental, as in showing its declining magnitude in comparison with public secondary education, or describing the foundation it laid for the public high-school movement. Although no great array of data is at hand by means of which to describe and evaluate private secondary education, some materials pertaining to it are presented.

The extent of private secondary education. The materials presented in Chapter I concerning the extent of private secondary education pertained to the country as a whole, no attempt having been made there to disclose any variation in this respect from state to state or from section to section. The facts are that there are striking differences. Of all enrollments in the four conventional high-school grades the proportion enrolled in private schools is almost twice as large for New England as for the entire country (see Fig. 49). It is somewhat increased by the registration in private schools of this section from other sections of the country. The proportion is not so large in the Middle Atlantic and Southern states as in New England; it is, however, larger than in the Central

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states and in the West. The generalization to be made is that *the farther west, the smaller the proportion of private-school enrollment*. The public-high-school movement has been so vigorous in the newer states as to prevent the growth of a private-school tradition as found in other sections.

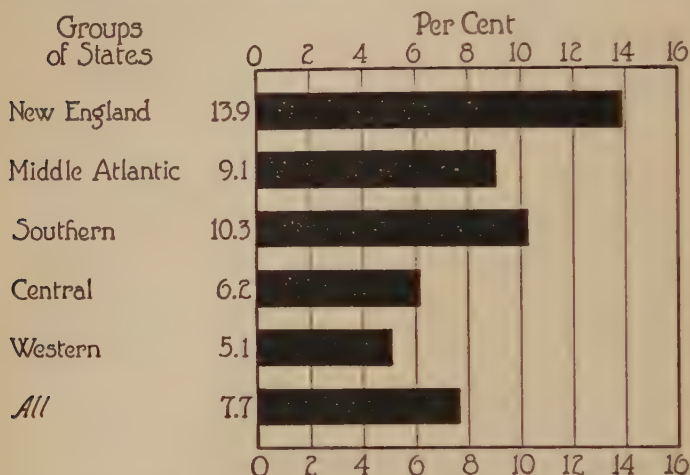


FIG. 49. Percentages that enrollments in private secondary schools were of total enrollment in secondary schools, 1921-1922. (Computed from data presented in (10), pp. 8-9, Table 7, and (9), pp. 5-6, Table 5)

Segregation and coeducation. There is much more segregation of the sexes in private schools than in public schools. For 1919-1920 the proportions of private secondary schools reporting to the Bureau of Education were distributed as follows: for boys only, 18.4 per cent; for girls only, 34.8 per cent; coeducational, 46.8. Thus more than half were segregated schools. This is far in excess of the little more than half of 1 per cent of such schools in the public group, as reported above. During this year 56.2 per cent of all pupils in private secondary schools were enrolled in these segregated institutions.¹

¹ Computed from data presented in (9), p. 2, Table 1.

OTHER TYPES OF SECONDARY EDUCATION

Distribution to subjects. Another means of describing private secondary education is afforded in data pertaining to the enrollments by subjects of the pupils in attendance. This material is more meaningful when compared with similar data for public high schools. The proportions of the total

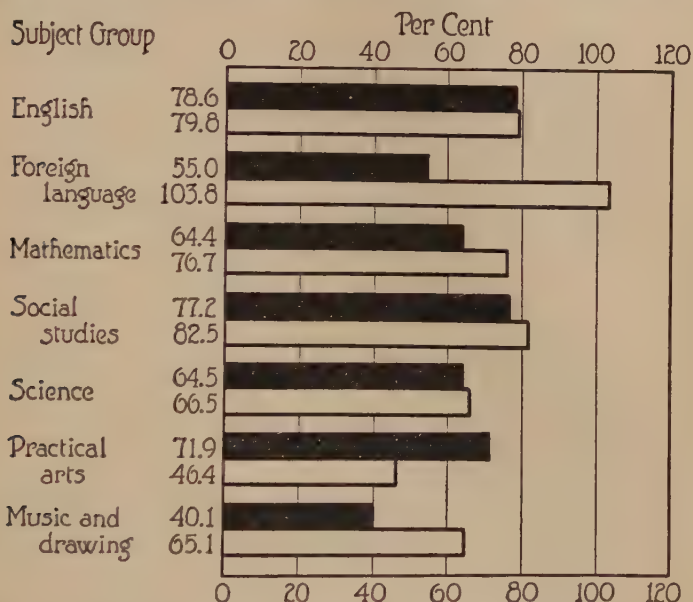


FIG. 50. Percentages that enrollments in certain subject groups are of total enrollments in public and private secondary schools, 1921-1922. (Black, public; in outline, private.) (Computed from data presented in (10), pp. 46-47, Table 32, and (9), pp. 25-26, Table 15)

enrollment represented by those who were enrolled in English in 1921-1922, as shown in Fig. 50, were almost equal for the two types of schools. In foreign languages the private schools far exceeded the public schools. In mathematics and in music and drawing the private schools also somewhat exceeded the public schools, although not as strikingly as in

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foreign languages. The difference in the group of subjects last named is (a fact not made apparent in the figure) for the most part attributable to enrollments in instrumental music. The figure does not disclose certain other significant differences *within* the subject groups. For example, as concerns the social studies, registrations in the standard courses in history in the private institutions are larger proportionately than in the public schools, but the public schools lead in civics, economics, and sociology, which are the more recent arrivals in the secondary-school curriculum. The same type of distinction applies in science, for which the proportions shown in Fig. 50 are nearly equal: the private schools have larger proportionate registrations in the older courses, such as physics, chemistry, and physiography, and the public schools excel in general science, relatively a new member in the family of science courses. Public-school registrations exceed those of private schools in agriculture, home economics, manual arts, and the commercial subjects. The private-school curriculum, as far as it may be measured in this way, is much more conservative than that of the public secondary school.

It is not out of place here to mention that of the private schools reporting in 1921-1922 to the Bureau of Education 16.3 per cent, or approximately a sixth, were offering military training, whereas the percentage for public high schools was only 2.3.¹

Distribution of pupils by years. A further means of description to be used here pertains to the distribution by years of pupils in public and "non-public" secondary schools, cited by Calvin O. Davis (see Fig. 51). The particular institutions represented are those on the accredited list of the North Central Association of Colleges and Secondary Schools. The two groups of schools provide an interesting contrast in this respect, the public schools showing larger proportions of

¹ Computed from data reported in (9), p. 2, and in (10), p. 2.

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pupils in the first two years, and the non-public schools in the last two years. The latter have a condition approaching an equal distribution to all four years, a condition from which the public high schools are all too remote. The difference in this respect for all high schools in the United States is not so marked, the percentages for each of the four high-school years

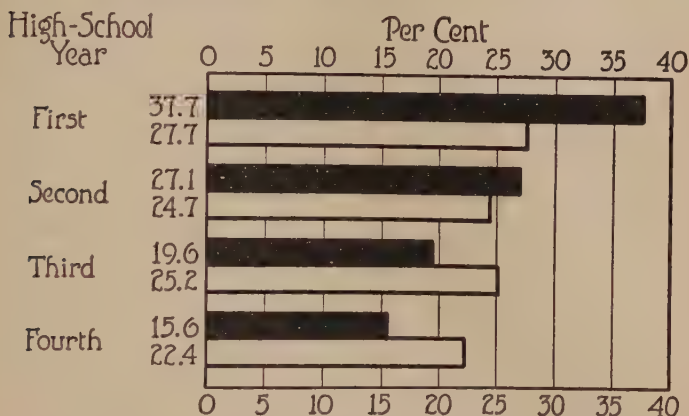


FIG. 51. Percentage distribution by years of students in public and non-public secondary schools on accredited lists of North Central Association, 1916. (Black, public; in outline, non-public.) (From Davis (3), pp. 28 and 116)

in public institutions in 1921-1922 being 39.0, 27.3, 19.1, and 14.6,¹ and in private schools, 34.3, 26.9, 21.6, and 17.2.²

In casting about for explanations of this difference in favor of private schools one may think of transfers often made, for one reason or another, in years after the first, to private schools from public high schools. This cannot, however, account, by any means, for all the difference found. There must actually be better retention throughout the four-year course in private high schools and academies. This may be antici-

¹ (10), Table 2, p. 3.

² (9), Table 3, p. 3.

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pated from what is known concerning the selective character of many private schools. For instance, Counts has shown for two secondary schools operating under private auspices, the cost of attendance upon which would be beyond the reach of most children whose families are in moderate circumstances, that the percentages of the children of fathers who are proprietors and in professional service were, respectively, 42.7 and 31.0, those in both groups totaling 73.7 per cent, or almost three fourths of all pupils. The corresponding percentages for public high schools were 19.8 and 9.4, totaling 29.2 per cent, or about midway between a fourth and a third. On the other hand, the percentage in manual labor, skilled and unskilled, for the two private schools was 0.3 — a negligible proportion. The percentage in these groups for public high schools was 29.1, practically equal to the total of fathers who are proprietors and who are in professional work.¹ From what was shown in Chapter III as to the influence of paternal occupation on retention, it may be expected that retention and, consequently, distribution by years would be better in private schools.

In harmony with these data are those pertaining to the percentages of graduates going on to college from the two groups of schools represented in Davis's study. He reported that in the fall of 1916 there were found in college 57.6 per cent of those who graduated in that year from non-public schools, but only 38.5 per cent of the graduates of public high schools. This is a difference of 19.1 per cent, which is approximately a half more than the proportion of public high-school graduates.

Relative efficiency of graduates in college. Most of us do not require to be told that the private secondary school is more frequently a college-preparatory institution than is the public high school. It is not so generally known that the public school has shown some tendency to superiority as measured

¹ (III) (4), p. 138.

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by the subsequent scholarship in college of its graduates. For example, Beatley found with regard to students in Harvard, incidentally to a study made for another purpose, "that the men prepared at private schools obtained on the average poorer marks in school and in college than men prepared at public schools, but that on the [comprehensive] examination the two groups were practically equal in attainment. . . . The writer hesitates to attach great significance to this finding because of the differing social and economic forces which influence the men of these groups. There is a tendency, however, for a public-school man to do better work in college than a private-school man who obtains the same comprehensive examination standing." ¹ Potter, in an article in which he had first quoted data showing that in both Harvard and Yale the graduates of public high schools were superior in scholarship to the graduates of private schools, reported a study made concerning the scholarship of high-school and academy graduates who had later attended The University of Chicago, from which he concluded "that as an agency preparing for college the high school is far superior to the academy." ² More recently (1922-1923) the superiority of the public high schools in the list of secondary schools accredited by the Association of Colleges and Secondary Schools of the Southern States was shown in the fact that graduates of private secondary schools failed in 15.5 per cent of their courses in their freshman year in college, and graduates of public secondary schools failed in 10.9 per cent. For the school year 1921-1922 the corresponding percentages were 17.0 and 11.9. ³

¹ Bancroft Beatley, "The Relative Standing of Students in Secondary School, on Comprehensive Examinations, and in College," *School Review* (February, 1922), Vol. XXX, pp. 141-147.

² George M. Potter (8), p. 535.

³ Report of the Committee on Deans' Reports for 1922-1923. Reprinted from the Proceedings of the Association of Colleges and Secondary Schools of the Southern States (1924), p. 37.

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These evidences do not mean that public high schools always prepare better for college than do private schools, nor that individual schools among the latter may not perform this traditional function of "prep" schools consistently better than the average public school. The studies, moreover, do not account for all the factors that may be operative in determining the superiority of one group of schools over another (for example, those touched on by Beatley in the quotation above), but they do prompt the query whether these schools shall continue to be advocated because they give better preparation for college than do the public institutions.

Service of the private secondary school. Questioning the grounds for confidence in the special college-preparatory function of private schools raises the whole question of the future place of the private secondary school in this country. Such schools are sometimes advocated on religious and denominational grounds; but it has been seen (Chapter I) that schools on sectarian foundations, except for Catholic schools, are numerically on the decline. The distribution by age of students in some private schools shows that not infrequently the maturer student, who when younger did not have access to a high school, finds there the opportunity to secure education without embarrassment because of his age. It also provides boarding facilities for young people whose homes are remote from public high schools. Both these special services are being reduced by the rapid extension of opportunities for public secondary education, and by some provision for dormitories in connection with public schools as mentioned in Chapter VIII. Occasionally, also, there is the pupil unfortunate enough to be without a home, for whom the boarding school provides a substitute. The private secondary school, too, is advocated for its freedom to experiment, this freedom being less permissible in most public-school situations. To the extent that schools on private foundations vary

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from the norm of secondary-school practice, trying out or demonstrating innovations, they may be expected to contribute to education on this level. Without doubt there are such schools among the non-public group, and these should be encouraged in their experimental programs. This is not, however, a blanket justification for all private schools. It is inferable from data like those on the distribution of students by subjects reported above that private schools, by and large, are less given to innovation and experimentation than are public schools. Notwithstanding the several services, one may judge from some of the data presented that the private school is, in the long run, not democracy's school *to the extent to which the public high school is democracy's school*. This is not to say that private schools are contributing nothing to democratization. Individual schools are without doubt accomplishing something in this direction. And there are public high schools which may be obstructing it. But the trend of the evidence is in behalf of the public institution.

Because of the traditions supporting them, private secondary schools will be with us for a long time to come. They can be administered so as to render an unequivocal service to American life. The problem is to locate this service and to emphasize it, and not to have private schools operate as an obstruction to the development of the public secondary education to which this country is committed. One danger in their existence, which it will be well to mention before concluding this brief treatment, is that those who patronize them may become indifferent to the interests of the public secondary school. Everything possible should be done to prevent the well-to-do and others from taking the unsocial view that, with their children cared for in expensive and exclusive private schools, the problem of maintaining effective public institutions is not a vital one. Such an attitude is contrary to the best American traditions.

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III. ADDITIONAL PROVISIONS FOR SECONDARY EDUCATION

The night high school. Another kind of provision for secondary education which should not be lost sight of in a complete list of institutions affording training on this level is the night high school. We do not here refer to evening continuation work, upon which report has already been made in an earlier section of this chapter. Night high schools are what the name indicates: they provide the usual types of high-school work in evening classes. The auspices under which they are maintained are sometimes public, sometimes private. Something of the kind of service rendered may be learned from the following data concerning students attending a school of this type maintained by the St. Paul Institute, a community organization in St. Paul, Minnesota, which fosters this among a number of educational and recreative activities. The information was supplied by one hundred and forty-three members of classes attending the night high school on two consecutive evenings in the spring of 1925. The work is carried on in one of the public high schools of the city, the teachers being for the most part from the day schools. For this work they are paid a modest fee by the Institute.

1. Description of the students by *age* affords one of the best clues to the service being rendered. Those who reported on this item (129 of the total 143) ranged in age from fifteen to forty. There were relatively few at the younger ages, as may be seen in the range of the middle 50 per cent when placed in the order from youngest to oldest. This range is from nineteen years two months to twenty-six years ten months. The significance of these ages becomes more apparent when they are compared with the range in ages of the middle 50 per cent of high-school seniors. For instance, computation of this range for those enrolled in the twelfth grade in the high schools of Minnesota as reported in Table IX, p. 67, finds it to be from sixteen years ten months to eighteen years three

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months. The upper limit of this range fails by almost a year to touch the lower range limit of the night high-school group; it fails to touch the upper limit by fully eight and one-half years. *Students who attend night high school are for the most part men and women rather than boys and girls.*

2. Although most of these students — almost three fourths, in fact — are native-born, about two thirds (65.9 per cent) reported having fathers of foreign parentage.

3. Almost half (45.4 per cent) appeared never to have attended any other high school.

4. Almost three fourths (72.7 per cent) were wholly self-supporting and almost a fifth more were partly self-supporting. Of the total of 143 students 124 were working at the time of making the report. For those who were working the median number of hours of employment per day was 8.35; that is, with a few exceptions, these students were full-time workers in some employment. The occupations represent a wide variety, such as stenographers, clerks of many kinds, nurses, truck-drivers, motormen, electricians, printers, barbers, machinists, and unskilled workmen.

5. The purposes given by these students for attending the night high school are several, three of which will be mentioned. The largest single number are taking the work because they hope later to enter college or to register for university extension courses. Many — the next largest numbers — say they are merely desirous of securing a high-school education or are seeking self-improvement. The members of another large group are taking the work to meet the requirements of some occupation, sometimes to qualify for some employment in the civil service. A few among the younger students plan to apply the credit toward graduation from day high schools. These purposes often overlap.

In the light of the facts cited there can be no question that the night school offers the opportunities of education on this level to those who for the most part would not otherwise have

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them. Therefore it is an instrument for democratizing secondary education and should be encouraged.

Secondary-school facilities for negroes. Any complete catalogue of provisions for secondary education must include those for negroes. These are, like schools for whites, under both public and private auspices. In the Northern states, with the exception of sections near Southern states bordering on them where race segregation in school is provided, colored students are usually admitted to the regular public secondary schools. In the Southern states, as is generally known, wherever public secondary education is made available to negroes it is done in separate schools. Of the 179 public high schools for negroes reporting to the Bureau of Education in 1921-1922 all but a small proportion were in the South, the remainder reporting from bordering states. Of a total of between 35,000 and 36,000 colored pupils reported as enrolled in the four conventional high-school grades in all public high schools of the country, approximately half were enrolled in segregated schools in states usually classified as Southern, in the District of Columbia, and in Delaware, Maryland, Missouri, and Oklahoma.¹ In the same year for colored pupils the number of private high schools and academies reporting was 106, all being within this same general region. These enrolled about 9000 students.² Adding these to the number already reported in public secondary schools, we obtain a total reported of approximately 45,000 students in the four high-school grades. This is a very small proportion of the negro population of high-school age.

Additional provisions for secondary education. If description of all facilities for secondary education were to be undertaken, among others to be recognized would be summer high schools, which are being conducted in a majority of cities with populations of a hundred thousand and over,³ as well as in some

¹ Based on Table 8 in (10), p. 10.

³ M. David Hoffman (7).

² Based on Table 12 in (9), p. 13.

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smaller cities; provisions for extension and correspondence education on this level; and a good deal of the work being carried on by such organizations as the Y.M.C.A. and the Y.W.C.A. These, together with the provisions already described in this and foregoing chapters, namely, four-year high schools, junior high schools, senior high schools, junior colleges, rural high schools, special-type high schools, vocational and continuation schools, private secondary schools, night high schools, and negro high schools under public and private auspices, include an impressive array of efforts to fit education on this level to every group and every need. They also call for attempts at a coördination not yet achieved in our secondary-school organization.

QUESTIONS AND PROBLEMS

1. Visit some special-type high school, for example, "technical" or "commercial," and make observations with the purpose of ascertaining the extent of its adherence to the special purpose implied in its name.

2. Apply to some high-school situation you have met with the principle that a high school should be "comprehensive in relation to the locality it serves."

3. How is the greater dominance of *public* secondary education in the West and the Middle West, as compared with New England and the South, to be explained?

4. Discuss the question of whether the private secondary school of today is more democratic or less so than the early Latin grammar school.

5. What accounts for the fact that the sexes are segregated in a larger proportion of private than of public schools?

6. Inquire more fully into the relative merits and disadvantages of coeducation and segregation.

7. Through visitation or descriptive literature inquire into the constructive service being rendered by private schools intentionally experimental.

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8. Is experimentation never permissible in public secondary schools?

9. Visit an evening part-time session or a night high school with a view to observing to what extent those taking the work conform to the description of the student body of the night high school in St. Paul as this was reported in the chapter.

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XI

THE SECONDARY-SCHOOL OFFERING: GENERAL CONSIDERATIONS

I. RECENT TRENDS IN SUBJECTS TAKEN

The concern of this chapter and the three next following. The question of the curriculum is of such moment and has, withal, so many ramifications where an educational institution is being considered, that it would be difficult, if not impossible, to leave it entirely out of account in dealing with any other large problem pertaining to that institution, such as its history, its aims, the types of organization, and those who attend. This will explain the frequent emergence of this question in the content of the preceding chapters from the first, which is concerned with the development of the American secondary school, to the one just closed. It is not enough, however, to deal with this great problem in an incidental way; therefore the next four chapters (Chapters XI-XIV) are specially concerned with it. The present chapter deals briefly with certain general considerations; namely, recent trends in the subjects taken by high-school pupils, the criteria of subject values, and the methods of curriculum-making. There will be a chapter on the "academic" subjects and one on the "special" subjects. The last of the four chapters has to do with the organization and administration of the program of studies as a whole.

Recent trend for the whole country. It is to be expected that the enlargement of the total offering by the appearance of new subjects, as this was described in Chapter I, would result in a shift in the proportions of all pupils enrolled in each

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subject or group of subjects. Something of the nature of this shift is disclosed in Fig. 52, which shows the percentages of the total enrollment represented by those pupils enrolled in each of six subject groups for 1910, 1915, and 1922. The method of obtaining the measures reported was merely to compute the percentage of the total reported enrollment in high schools of the country represented by the total registration reported for the subjects in a given group. Since pupils are sometimes registered in more than a single subject within a group of subjects at the same time (for instance, in two foreign languages), the percentages should not be interpreted as representing accurately the proportions of all pupils who were taking work in a given year in the subject groups named.

1. It may be doubted whether the decline in the percentage shown for *English* between 1915 and 1922 represents an actual shrinkage, since the manner of reporting on this subject was modified in the intervening period. Formerly registration was reported separately for rhetoric and English literature, but more recently these have been included under the composite title used in Fig. 52. If there was any actual decline in the proportion studying this subject, it was probably slight.

2. The decline for *foreign language* is unequivocal, dropping from approximately five sixths to somewhat more than half the total enrollment. A fact not shown in the figure is that the decline applies to both ancient and modern languages, the percentages being almost equal for these two subgroups in 1922.

3. The percentages for *mathematics* (algebra, geometry, and trigonometry) show a similar decline during the period included, dropping to less than two thirds by 1922.

4. *Science*, dropping notably at first, held its own toward the end of the period considered. Facts not disclosed by the Fig. 52 are marked slumps for physical geography, botany, zoölogy, physiology, and physics, with rapid increases for general science and biology.

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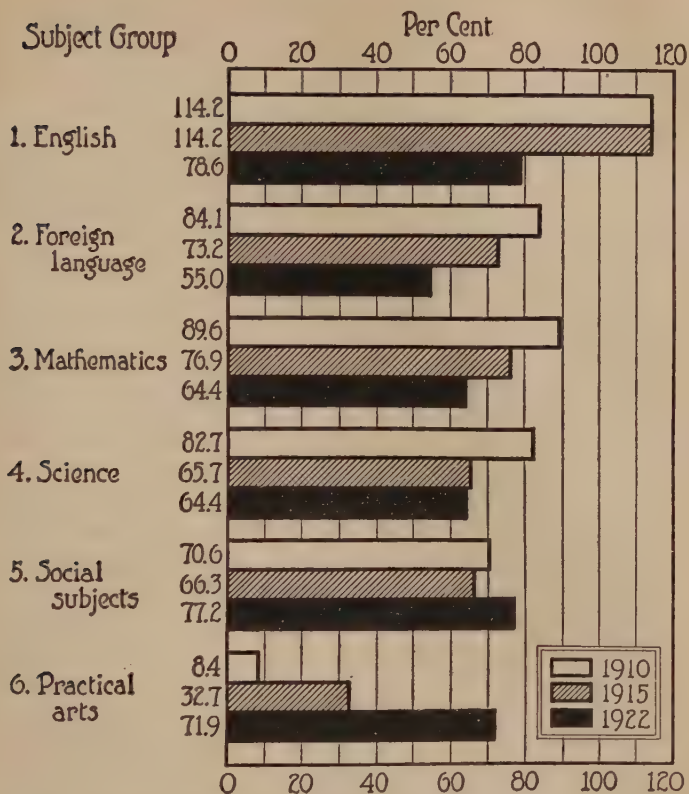


FIG. 52. Percentages of pupils in the public high schools of the United States represented by the total enrollments in certain subject groups. (Adapted from materials in *United States Bureau of Education Bulletin No. 7* (1924), pp. 46-47, Table 32)

5. For the *social subjects* as a group there was first a small decrease and more recently a notable increase. This increase was in the nonhistorical subjects, such as civics, economics, and sociology. Historical courses as a group did not quite hold their own.

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6. The increase for the *practical arts* is much more remarkable than for the social studies, although it is fair to assume that the figures reported exaggerate the increase somewhat because of more systematic efforts in recent years to secure reports on the subjects represented. The greatest increase in this group was in the commercial subjects, but manual training and home economics also showed good gains. Agriculture alone showed no marked increase.

7. *Music and drawing* (not represented in the figure) together enrolled in 1922 numbers of pupils equal to about 40 per cent of the total enrollment in the high schools.

One may generalize for the subject groups by stating that English probably held its own, that the foreign languages and mathematics lost by large proportions, that science held its own, and that the social studies showed appreciable gain and the practical arts remarkable gain. In generalizing on the particular subjects one may say that the newer members of the family gained, often at the expense of those already in the field.

The trends in a single state. Because of an almost uniform system of reporting over a long period of years it is possible to include at this point a study of trends in subjects taken by pupils in the high schools of Minnesota (see Table XXXI and Fig. 53). The method of computation is the same as that used in the study just reported for the United States as a whole. The data utilized are those for 1894-1895 and for every fifth year thereafter up to and including 1919-1920. The year 1923-1924 is the last one represented.

1. *English* began with a relatively small proportion (less than a fourth of the total high-school enrollment) at the opening of the period, but gained so rapidly that since 1910 it has included approximately the total enrollment. The proportions in recent years have resulted from a requirement by the state that no pupil can graduate without completing four units in this field.

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TABLE XXXI. PERCENTAGES OF ALL PUPILS IN THE HIGH SCHOOLS OF MINNESOTA REPRESENTED BY THE TOTAL ENROLLMENTS IN CERTAIN SUBJECT GROUPS ¹

SUBJECT GROUP	1895	1900	1905	1910	1915	1920	1924
English	22.0	36.3	60.1	99.9	100.0	95.2	101.1
Foreign language	70.4	88.2	88.4	81.1	60.1	40.6	34.4
Ancient language	53.5	65.4	56.0	43.7	23.4	20.5	21.4
Modern language	16.9	22.7	32.5	37.4	36.7	18.4	13.0
Mathematics	83.5	89.7	85.9	77.2	67.2	60.0	55.8
Science	85.3	58.9	66.1	69.7	53.9	50.8	54.5
Social studies	40.6	48.0	56.1	64.9	56.8	61.8	79.9
Practical arts ²	23.5	17.7	25.6	66.8	119.3	122.5	91.8
Fine arts	12.8	13.8	15.6	9.9	27.6	26.0	18.8
Physical training	—	—	—	—	14.7	25.7	35.4

2. The *foreign languages* show an interesting history. After a slight increase during the first half-decade they fell off, slowly at first but with greater rapidity from 1910 to 1920, the decline slackening to some extent from 1920 to 1924. On the assumption that some were taking two foreign languages at the same time the 34.4 per cent reported for this subject group in 1924 means that less than a third of all pupils were taking work in this field. The bulk of the registration in the early portions of the full period was in Latin; but by 1915 the modern languages — mainly German — enjoyed larger enrollments than Latin. The almost total disappearance of German during the next half-decade, which included the war period, again gave Latin a slight ascendancy (20.5 per cent in 1920 as compared with 18.4 per cent for modern language in that year), which was somewhat strengthened again by 1924 (21.4 per cent for Latin and 13.0 per cent in modern language, in which French had the most students, and Spanish, German, and the Scandinavian languages came next in order).

¹ Adapted with certain additions and modifications from an unpublished study by Aaron J. Regier, a former student in the University of Minnesota.

² Including commercial subjects.

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3. The place of *mathematics* has a history not unlike that for foreign language, the chief difference being a slower falling off. By 1924 the percentage had dropped to 55.8 — still more than half. By that date "general," or "unified," mathematics had made its appearance and enrolled almost a fourth of all those reported as taking mathematics.

4. Enrollment in the *sciences* experienced a sharp proportionate decline during the first half-decade and a moderate decline between 1910 and 1915, but in other periods it either practically held its own or made appreciable gains. As with data for the United States, there were notable shifts for individual courses. The largest losses in Minnesota have been for physiology, physiography, botany, zoölogy, and, to some extent, physics; the largest gains were for the composite courses in general science and biology.

5. The *social studies* show a steady gain throughout the period except for the years from 1910 to 1915, when all groups of academic subjects excepting English experienced a decline. This group at the close of the full period studied was enrolling a gross number of pupils equal to four fifths of the total enrollment of the high schools, and was third in the list of subject groups when measured in this way. During the last three divisions of the period — that is, approximately the latter half of the full period of years covered — the proportions registered in courses in history remained almost constant, standing at from 44 to 45 per cent of the total high-school enrollment. The increments for this subject group are therefore attributable to the nonhistorical courses, which by 1924 included, in the order of numbers of pupils enrolled, civil government, economics, social problems, community civics, and vocational civics. However, proportions in the several courses within the field of history had also shifted considerably, ancient history falling off from 1910, and English history almost entirely disappearing. On the other hand, modern history and American history made large gains.

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6. The *practical arts*, inclusive of commercial subjects, showed the most remarkable gains of all subject groups. During the ten-year period from 1905 to 1915 the percentage mounted from 25.6 to 119.3. This development

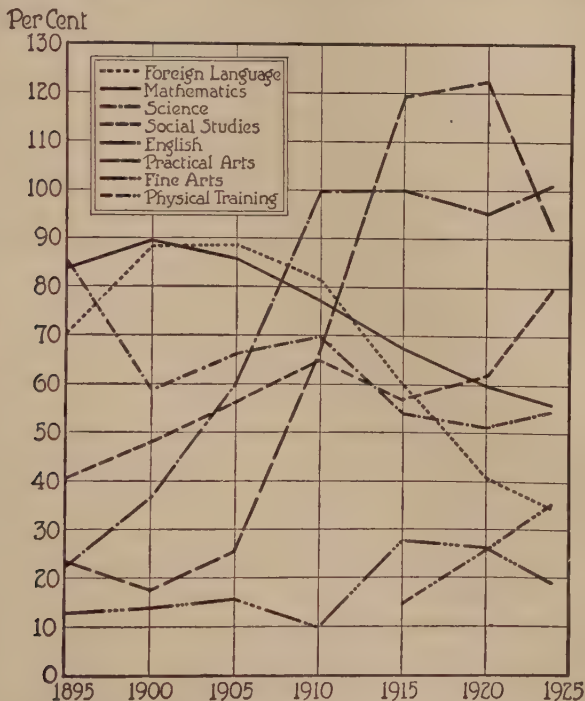


FIG. 53. Percentages of the total enrollment in the high schools of Minnesota represented by the registration in each of the several subject groups. (Based on Table XXXI)

was stimulated by special grants of state aid for each of the departments represented; namely, agriculture, home economics, manual training, and commercial training. All four fields experienced some falling off in the last division of the period, but as a whole they maintained a position next

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to English. The percentage at this point, 91.8, was distributed as follows: agriculture, 2.4; home economics, 26.2; manual training (more recently designated in Minnesota as "general industrial training"), 22.2; and commercial training, 40.9. The relatively small proportion in agriculture is explained by the post-war financial reverses of the farmer.

7. *Free-hand drawing and music*, designated as "fine arts" in Fig. 53, have not yet attained a prominent position when measured in this way. The percentages shown from 1895 through 1910 are for free-hand drawing only. For 1915 and following years both subjects are represented.

8. *Physical training* does not make its appearance in the data used in the study until 1915. There were important gains after this year, the percentage represented by the enrollment in the subject having reached 35.4 by 1924.

A chief conclusion from a comparison of the trends in Minnesota and the country as a whole is that such shifts as were disclosed for the United States are accentuated in Minnesota. For instance, the falling off of registration in foreign language and mathematics is greater, and the increments in the social subjects and the practical arts larger. This must mean that there are states in which the changes are much less marked.

It should be borne in mind that downward shifts in *percentages* do not always mean a decline in the actual *numbers* enrolled. For example, in Minnesota, the pupils pursuing ancient language (exclusively Latin, except for 1900 and 1905, when Greek was occasionally offered) were 65.4 per cent of all pupils in 1900 and only 21.4 per cent in 1924, but the number of registrations in ancient language rose from 8378 in 1900 to 14,628 in 1924; for the total enrollment of high schools in the state had increased from 12,802 in 1900 to 68,438 in 1924. There can be no question that, relatively to the total high-school enrollment, such a subject has been far from holding its own.

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It is desirable to state also, even at the risk of repetition, that the changes which have been reported both for a single state and for the country as a whole are in essence *shifts*; for the average number of units carried by a pupil cannot have changed to any large extent during the periods represented. Except in some measure for music and physical training, when one subject or subject group gains in registration some other is displaced. This has most clearly been demonstrated in Minnesota for the half-decade 1910 to 1915, in which the practical arts gained at the expense of foreign language, mathematics, science, and the social studies. As the pupil's load is at present administered, older subjects have been obliged to give way to the new arrivals in the high-school offering.

II. THE CRITERIA OF SUBJECT VALUES

The need for well-established conceptions of subject values. Somewhere back of the shifts that have just been reported, there must be a changing conception of values of subjects of study, operating positively toward some subjects or negatively toward others. One may go farther and explain the status of all subjects and subject groups in any given period by the estimates of values current at the time. This is true even where the proportions of pupils taking a subject are what they are because of graduation requirements stipulated by state authorities, or because local boards avail themselves of the offer of partial reimbursement by the state for introducing new subjects of study, or because colleges favor certain groups of subjects in stating their requirements for admission. The fact that in such instances the estimates are in a sense imposed from without and may not at the same time be as fully entertained by local school authorities, by pupils pursuing the courses, or by their parents, does not subtract from the determinative influence of these current estimates. Therefore, as long as curricula are administered by means of sub-

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jects, it is exceedingly important to win general recognition for as well-founded and worth-while a formulation of criteria of subject values as can be discovered.

The aims and functions of secondary education as criteria. The final test of a subject of study must always be the extent of its contribution toward achieving the goals of the institution in which it is given. If this is true, the criteria by which the courses going forward in the secondary schools are to be judged are the purposes of secondary education. A formulation of these was made in Chapter IV¹ in connection with a composite portrait of purposes proposed by a number of writers in the field. In accordance with this formulation a secondary-school subject to be valuable must make some significant contribution to one or more of the aims and functions of secondary education. Repeated in brief, the aims are training (1) for civic-social-moral responsibilities, (2) for recreational and æsthetic participation and appreciation, (3) for occupational efficiency, and (4) for health. The functions, which are defined as conditions under which secondary education must go forward in order the better to achieve the aims, are (5) achieving a democratic secondary education, (6) recognizing individual differences, (7) providing for exploration and guidance, (8) recognizing the adolescent nature of pupils, (9) imparting knowledge and skills in the fundamental processes, and (10) fostering transfer of training.

Although the proper place for evaluating the subjects and subject groups or for indicating by means of these criteria what should be done within them is in the two chapters next following, it is desirable here to illustrate the procedure. This can be done by reference to the data already presented in the foregoing section on the proportions represented by the enrollments in the several subject groups. For this purpose it is preferable to restrict reference to a few of the subject groups already named. If English, which appears to be taken each

¹ Page 167.

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year by most pupils, is presented with appropriate content and by appropriate methods, it can go far toward achieving a number of the purposes. On the side of literature it is obvious that English should assist materially in achieving the civic-social-moral aim and the recreational aim ; furthermore, by proper selection of material to be read, it can contribute to the recognition of individual differences as well as to the recognition of adolescent nature, as illustrated, for instance, in the spontaneous interest of adolescents in social matters. On the side of composition, oral and written, English should go far toward affording training in several most important fundamental processes. The social studies obviously must be called upon beyond other subject groups to contribute to achieving the civic-social-moral aim. They should also afford training for the proper use of leisure. Again, since they *are* social they should recognize adolescent nature. The practical arts may be expected in some measure to have values in vocational preparation, in guidance, etc. Physical training should conduce to recreation and to health. These subject groups, properly taught, should have additional values not mentioned here, and the remaining subject groups not thus treated illustratively must be expected to contribute to one or more aims and functions.

The disciplinary value of high-school studies. No preliminary treatment of the criteria of subject values can be presented without some special consideration of the often-claimed values in mental discipline. The problem of transfer of training was accorded some attention in Chapter IV when formulation of the aims and functions of the secondary school was being reached, the view accepted being that there *is* transfer, especially when methods are instituted to facilitate it. The treatment of the question at this juncture does not deal so much with the possible methods of facilitating transfer as with a comparison of the subjects of study in regard to their value in "mental discipline" under current methods of administering them.

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Such evaluation as is essayed along these lines may be most easily accomplished by drawing upon portions of an experiment reported by Thorndike:¹

The experiment . . . consisted of an examination in May, 1922, and a reëxamination in May, 1923, of 8564 pupils who, in May, 1922, were in Grades IX, X, and XI. The two examinations were alternative forms of a composite of tests of "general intelligence" that are in common use, plus certain ones added in order to have measures with spatial as well as verbal and numerical content. . . . Each pupil who took both examinations recorded the subjects which he studied during the school year, September 22, 1922, to June 23, 1923; and the gains made were put into relation with the subjects studied. For example, we compare the gains for the pupils who studied English, history, geometry, and Latin during the year with the gains for the pupils who studied English, history, geometry, and shop-work. If other factors such as initial ability, zeal in taking the examination, and special training on its content are properly equalized or allowed for, the difference in gain represents the difference between Latin and shop-work as taught in these schools in general training or disciplinary value or improvement in "general intelligence," or whatever a gain in such an examination measures.

It is out of the question to attempt to report here the extended and rather complicated statistical procedure followed in obtaining the measures from which the conclusions of the study were drawn. The most that can be done is to refer to certain numerical results and to quote to some extent from the final portions of the report. One group of measures arrived at purported to be the "equivalent superiority or inferiority in gain in score points" attributable to having studied a given subject during the year intervening between the two examinations referred to. These gains ranged from + 2.5 score points for French at the top to - 6.5 score points at the bottom for cooking and sewing in a combined course, the gains for all other subjects lying between these limits.² This

¹ Thorndike (20), p. 1.

² Ibid. p. 22.

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is a difference of 9 points. Additional illustrative gains in score points were physics, + 2.05; Latin, + 1.7; geometry, + 0.7; history, + 0.4; shop, + 0.15; civics, - 1.25; and biology, - 1.4. Some notion of the significance of these changes may be had from reference to total scores on the tests. The median total scores in Grade X in the 1923 examination in the schools represented in the study ranged between 160.6 and 222.5, and those in Grade XII between 202.2 and 271.3;¹ and the variation of total scores among individual pupils in an illustrative school was from somewhere between 60 and 70 to somewhere between 320 and 330.

The gains by subject as just illustrated, however, were computed without regard to sex or initial ability. In the final large step in the computations the investigator arrived at a "weighted average difference," in which correction was made for these two factors. In this step the subjects were distributed to a number of groups, the grouping being based for the most part on gain in score points, but apparently in part also, except for Group I, on the nature of their content. This first group, used as the basis of comparison, included seven subjects with gains ranging from + 0.4 to - 0.4; that is, with gains nearest zero. The subjects were history, music, shop, Spanish, English, drawing, and business. The other subject groups with the "corrected weighted average differences" reported for them are as follows:²

II. Civics, economics, psychology, sociology	+ 0.27
III. Biology	- 0.90
IV. Arithmetic, bookkeeping	+ 2.92
V. Algebra, geometry, trigonometry	+ 2.33
VI. Latin, French	+ 1.64
VIII. Stenography, cooking, sewing, combined cooking and sewing	- 0.47
IX. Chemistry, physics, general science	+ 2.64
D. Dramatics	- 0.29
T. Physical training	+ 0.66

¹Ibid. p. 9.

²Ibid. p. 90, Table XVI.

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In commenting on these results Thorndike points out that they "are in pronounced opposition to the traditional view that certain subjects produce much more general improvement in ability to think than others, and that among the subjects taught in high schools, languages and mathematics are the two that do this to the highest degree." He says further:¹

If we take, on the one hand, our Groups V . . . and VI and, on the other, our Group VIII . . . , the best estimate of the greater gain in ability to think, due to spending a quarter of one's time during a high-school year upon the former rather than the latter, is a little under $2\frac{1}{2}$ points. This is only a quarter of the greater gain that one makes during a year by being white rather than colored, is less than the greater gain that one makes by being a high-school boy rather than a high-school girl [computed at 3.1 points] in those cities, the subjects taken being identical! We find notable differences in gain in ability to think as measured by these tests, but they do not seem to be due to what one studies. Whites gain 23.5 compared with 13.5 for the colored pupils in the same city. The pupils who make scores of 475 to 575 in the sum of the 1922 and 1923 tests gain about 13 points more than pupils who make scores of 175 to 275. When, however, we measure the effects of differences in studies, race and sex and initial ability of the students being equalized, the effects are small and uncertain. . . .

It should be noted that the facts . . . are not in opposition to the theory that general improvement of intellect results from school studies, and that studies vary in their value in this respect. The question is one of quantity. The traditional theory was (1) that the amount of general improvement due to studies was large; and (2) that the differences between studies in respect of it were large, so that the value of a study as training for the intellect was of very great importance relative to its value as special training in mathematical or linguistic or spatial or other thinking; and that (3) mathematics and languages gave much more of this general improvement than other studies did. The facts . . . , if corroborated by similar experiments, prove that the amount of general improvement due to studies is small; that the differences between studies

¹ Thorndike (20), pp. 94-97.

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in respect of it are small, so that the values of studies may be decided largely by consideration of the special training which they give; and that the languages have no claims to preëminence.

Conclusions from such a study cannot, of course, be accepted as final. Thorndike has pointed out that to arrive at these the experiment would need to be repeated with sixteen thousand or eighteen thousand additional cases. The combinations of subjects taken in a single school year by eight thousand to nine thousand pupils, the number here represented, are so numerous as to reduce toward unreliable proportions the number of cases used to evaluate any single subject by the method of investigation followed. Moreover, the composite of tests used favors linguistic and mathematical abilities and may not be quite fair to certain kinds of more or less general intellectual ability. Thorndike, for example, says that "the low position of the biological sciences may be due to the fact that the examinations did not test intellect with any three-dimensional objects or with any acts of living things."¹ The methods and findings are nevertheless such as to warrant skepticism of the conventional claims of the exceptional values in mental discipline of certain subjects or subject groups and a major reliance on specific values related to the aims and functions. Transfer values more peculiarly associated with specific subjects will be mentioned in the chapters next following.

III. METHODS OF CURRICULUM-MAKING

The use of the term "curriculum-making." The educational worker, like the worker in other lines, is often confronted by a confusion of terms in his field. An illustration is afforded in the word "curriculum," which is sometimes used to refer to the complete outline of work in a given field or subject and sometimes to the schedule of subjects taken by a pupil or group

¹ Ibid. p. 95.

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of pupils during progress through a school. Consequently the term "curriculum-making" is confused by applying it either to the task of determining the content in a given field or subject, or of setting up the schedules of subjects in a curriculum in the second sense. The former application of "curriculum-making" is now in the ascendancy, and it is in this sense that it is being used in this chapter. The proper arrangement of subjects into curricula in the second sense is a concern of Chapter XIV, which deals with the program of studies.

Older methods of curriculum-making. In recent years there has been much criticism of conventional procedures in curriculum-making and an advocacy of departures from them. Those who propose and characterize the new methods and the theories on which they are based are prone to contrast them with the traditional methods and theories; therefore it is possible to draw on statements of leaders in curriculum-making for characterizations of both the old and the new. Charters, for example, describes the conventional approach as dominated by specialism :¹

The theory upon which current curricula have usually been constructed maintains that the content of the curriculum should come from the specialist and be applied by the individual to the activities in which he engages after he has learned them. The specialist in chemistry, for instance, constructs a course in that subject which presents the fundamental facts and principles of the science as the chemist uses them. The same material is taught to chemists, engineers, farmers, doctors, housekeepers, and laymen with the expectation that each will apply such of it as he may need to the activities of his vocation or his leisure. The lexicographer selects the spelling list for the school and thereby specifies what he considers to be the fundamental spelling vocabulary. This list the individual learns and of it he uses those words which he may need in writing letters, articles, speeches, or reports. To these illustrations may be added the curricula in history, botany, zoölogy, physics, design, mathematics, grammar, sociology, and others.

¹ Werrett W. Charters (6), p. 357.

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In all of them the theory of specialistic determination holds that the fundamental content of the subject taught in the school is determined by the specialist; and that the learner, after acquisition, uses what he needs.

Another contributor to curriculum-making, Rugg, while discussing the report on the Reorganization of Mathematics in Secondary Education made by the National Committee on Mathematical Requirements, described the usual method along similar lines:¹

We must not forget...that whereas two types of expert service were needed, only one was employed — the traditional one — that of teachers trained and experienced in subject-matter. This is typical of current practices in curriculum-making in American schools. To the present time school courses of study have been made either by specialists in the authentication and documentation of subject-matter or by secondary-school teachers who were trained by such people and who are dominated by their points of view.

At another point in the same discussion Rugg referred to this report on mathematics as the product of "committee procedure"; consequently it is the work of a *number* of subject specialists working coöperatively, rather than the work of one subject specialist only. While a syllabus which is the product of the collaboration of several specialists in this way is likely to be more acceptable than that of a single worker, it is still the work of subject specialists and classifiable under this traditional type of curriculum-making. This would be true whether the committee operated over national areas, as did the one here used illustratively, or served locally, as within a state, a city system, or a single school in the system. And it is still essentially an identical method when, as is well-nigh a general practice, textbooks largely determine the content of the courses, for the textbooks, like the syllabi, have with infrequent exceptions been prepared by subject specialists.

¹ Harold O. Rugg (17), p. 26.

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An important deviation from this procedure, one that has sometimes been used, is found in the recourse to the judgment of large numbers of persons on the merits of this or that emphasis within a given subject. An interesting example of this is the study made by Jessup and Coffman¹ in which the opinions of large numbers of superintendents of schools were secured on the desirability of including in, or eliminating from, courses in arithmetic a large number of topics often found in them at that time. Examples of topics recommended for exclusion were alligation, unreal fractions, progression, dram, apothecaries' weight, compound proportion, cube root, troy weight, greatest common divisor, foreign money, partnership, and longitude and time; among topics recommended for increased emphasis were the fundamental operations, fractions, insurance, taxes, percentage, interest, investments, and the like. This method differs from that just described in not relying on the judgment of subject specialists, but on the judgment of those who, as professional workers, have over a period of years given thought to the problems of education in general. It is not, however, the same as the method next to be described — the method now often advocated by leaders in curriculum-making.

Activity analysis as a method of curriculum-making. Since Charters has been quoted on the theory of the older method of curriculum-making, it is appropriate to resort to his presentation of the theory of the new method he advocates:²

The other theory . . . maintains that the content of a subject is determined by the use to which it will be put. It quite willingly grants that the chemist shall determine the content of chemistry courses for prospective chemists but it emphatically maintains that the same right shall be granted for the use of the engineer, the doctor, the housekeeper, the farmer, and the layman.

¹ Walter A. Jessup and Lotus D. Coffman (14), chap. i.

² Charters (6), p. 358.

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Charters gives the term "activity analysis" to this theory. He describes it illustratively as follows:¹

The activities in connection with which a subject may be used are analyzed to discover exactly what the individual is to do and then the subject material necessary to assist in the performance of these activities is collected and organized. For instance, one situation in which the learner finds himself is concerned with the communicating and recording of facts. Specifically, the layman writes letters, and children compose original themes. To analyze this situation a count is made of words — in personal letters and in the writing of children. The lists so obtained become the spelling vocabulary for the elementary school, which is the school for laymen. For the spelling curriculum of the business college, in which stenographers and typists are trained, the same method is used but applied to a different situation in which word counts of business letters are made. . . . The grammar necessary for the correction of errors is secured after an analysis of grammatical errors of school children. The English composition needed by engineers is disclosed by an analysis of the uses to which engineers put the subject. . . .

Bobbitt, another of the constructive innovators in curriculum-making, writing in behalf of *functional* education, which "is the training of man for the performance of the functions or activities which constitute his life," also explains and advocates activity analysis:²

After one attains a functional conception of education, the central feature of the only possible scientific technique is entirely obvious. It is *activity-analysis*. Education is preparation for life, and life is a series of activities. Education, therefore, is preparation for the performance of these activities. Let us discover what the activities are which make up man's life and we have the objectives of education. . . .

Activity-analysis seeks to discover the quite specific types of human activity which men should perform efficiently. For example, it would discover the five or ten thousand words they

¹ Ibid. pp. 358-359.

² Bobbitt (4), pp. 49-50.

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spell, the several score mathematical operations they perform, the several hundred specific practical home activities in which they engage, the many things they do in the care of their health, the specific things involved in managing a checking account at the bank, and the like. For each vocation it discovers the many specific jobs in which workmen should be proficient. . . .

Both the writers represented in these quotations insist that the analysis must comprehend *much more than the easily observable physical activities*. Thus, Charters says that "an activity analysis is the analysis of both the mental and physical activities which are carried on by individuals. Used in this broad sense, activities include not only what people do but what they think, and feel, or will. . . ." ¹ On this point Bobbitt writes as follows, showing that the analysis contemplated is associated with no narrow-gauge concept of activity: ²

When we refer to activity or behavior, there is a natural tendency to think only of this outward behavior. This visible action is but a portion of human behavior. In a sense, it is not the most fundamental portion. . . . Hidden within the man, invisible, intangible, are the activities of the spirit which he feels to be the actual essence of life. These inner activities accompany the outer ones. They guide and direct. They are effects within the mind of one's outward action. . . . They are emotional reverberations which give to life its warmth and color. Above all, there is that master intellectual activity which we call vision, which exhibits itself as observation, contemplation, thought, analysis of problems, and the like. There are such subtle, deep-lying mental activities as appreciation, listening to music and being thrilled by it, viewing art and responding to it, reading good literature and responding in thought and emotion to its high aspirations and endeavor. There are also soberer mental activities such as apprehension of one's responsibilities. Even this latter is activity and not a static thing. . . . What we ordinarily call the qualities of man are, it seems, but subtle forms of the mind's behavior.

¹ Charters (6), p. 360.

² Bobbitt (4), pp. 51-52.

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This comprehensive concept of man's activity as including all varieties of the physical and mental brings in so much that it becomes advisable in the analyses for curriculum purposes to break life into several divisions. For this purpose the formulation of the *aims* of secondary education will be helpful, since it will direct attention to four main groups of activities which together constitute something akin to complete living: civic-social-moral relationships, recreation, health, and occupation. Not that these categories do not overlap, since it would be impossible to propose any large divisions which would be totally dissociated; but such a grouping is helpful in approaching the work of analysis. It will be necessary, in addition, to break these large groups into subdivisions. The *functions* of secondary education also will afford some of the principles of guidance to be observed during the work of analysis.

Illustrations of activity analysis. To make the method of activity analysis concrete and not leave it an abstract concept, it will be illustrated by drawing on studies in fields in which it has been used. The illustrations will be three, the first having to do with repair and construction work on the farm, the second with the social and business uses of arithmetic, and the third with the grammar necessary for the correction of errors in speech. The first may be considered as *prima facie* on the secondary-school level because it has been used to help in determining the content of farm-shop courses in the agricultural offering in high schools; the second and the third, although relating to the upper grades in the conventional elementary school, fall within the scope of the extended period of secondary education accomplished by junior-high-school reorganization. Other examples of activity analysis on the level of the traditional high school will be referred to in Chapters XII and XIII.

1. *Farm repair and construction.* New methods of curriculum-making have been more often used in vocations, espe-

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cially those on the trade level, than in the other major relationships of life. One explanation for this is the fact that since many of the activities in occupations on the trade level (where skills count) are of a physical nature, they lend themselves more readily than others to observation and objective treatment. Armstrong and Lathrop have reported the results of an investigation concerning the construction and repair work done by farmers in Minnesota.¹ The teachers of agriculture in a large number of communities in the state instructed the pupils who lived on farms how to fill out a questionnaire inquiring into activities of these sorts in which the parents had engaged during the year extending from March 1, 1920, to March 1, 1921. The pupils from more than five hundred farms helped their parents to fill out blanks. All that can be done here is to illustrate, and this will be accomplished by reporting the proportions of farmers who had done certain kinds of work during the year. For example, the kinds of construction in wood which had been done by more than a fourth of all farmers reporting were, in order of frequency, milking stools, wire fences, hog troughs, eveners, hammer handles, sawhorses, hen nests, ax handles, farm gates, file handles, hayracks, and chick-feeding troughs. A long list of other kinds of construction in wood done less frequently cannot be repeated here. Repair items reported by 30 per cent or more of the farmers were wire fences, hayracks, screen doors, pigpens, horse mangers, farm gates, eveners, and milking stools, with another long list reported less frequently. Cement construction had to do most often with floors, foundations, steps, and walls; metal work, with sharpening handsaws, sharpening crosscut saws, soldering, shoeing horses, making punches, sharpening plows, welding metals, making chisels and bolts, and tempering metals; miscellaneous work, with painting, puttying, lacing belts, cutting glass, making rough sketches, plastering, and making draw-

¹ Fred E. Armstrong and Frank W. Lathrop (1).

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ings to scale. It is hardly necessary to state that it is a far cry, indeed, from preparation for these specific operations to the usual formal course in manual training which has sometimes been taken by boys on the assumption that it would fit for this phase of life on the farm.

2. *Social and business usage of arithmetic.* Wilson¹ conducted an investigation to determine the arithmetic actually used in social and business relations. The persons chosen for report were the fathers and mothers of pupils of the sixth, seventh, and eighth grades in towns and cities of the Middle West. The pupils were given instructions and provided with blanks on which to make daily reports of the problems actually solved by their parents. Analysis of the 14,583 problems reported by more than 4000 people in 155 different occupations shows a total of almost 22,000 processes, distributed to only 43 different groups. The first twenty of these processes, with their frequencies of recurrence, were as follows:²

	FREQUENCY		FREQUENCY
1. Multiplication	6974	11. Discount	124
2. Addition	4416	12. Square measure . . .	124
3. Subtraction	2833	13. Time measure	111
4. Division	2437	14. Liquid measure . . .	96
5. Fractions	1974	15. Cubic measure	78
6. Accounts	1212	16. Insurance	78
7. Percentage	417	17. Banking	64
8. Profit and loss	169	18. Cancellation	62
9. Interest	144	19. Dry measure	57
10. Multiplication of frac- tions	130	20. Linear measure	52

These processes include 98.4 per cent of the total of 21,898 into which the problems were analyzed. There is a good deal of curriculum meaning in the fact that decimals (except as represented in percentage and United States money), apothecaries' weight, square root, partial payments, and partnership are processes that recur very infrequently and that a

¹ Guy M. Wilson (24).

² Ibid. pp. 34-35.

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long list of others often emphasized in courses going forward in the schools — for example, complex and compound fractions, reductions in denominate numbers, longitude and time, compound interest, domestic and foreign exchange, and cube root — appear not at all. Wilson also made a study of the complexity of the processes represented. The proportions of problems involving more than four-place additions or subtractions or more than three-place multiplications and divisions were very small. Computations in common fractions having more than a single digit either in numerator or denominator were seldom found. The trend of other findings were likewise toward emphasis on the simpler operations. There may be some danger in concluding that because these adults did not make use of a larger proportion of the usual content of seventh-grade and eighth-grade arithmetic, children in the schools need not be instructed beyond a very restricted range of different processes. This danger would arise in the limits placed on the parents' computations by the limitations of their training. An analogous query might be put concerning conclusions from the study of farm repair and construction. None the less, this essay into activity analysis leads the way to a wide departure from traditional emphases in the work given.

3. *Grammar necessary for the correction of errors in speech.* This illustration is introduced not only because it represents an additional field of activity but because it introduces another phase of the method of activity analysis, namely, "difficulty analysis" as contrasted with the "duty analysis" of which the first two investigations partly reported upon are illustrative. As Charters has pointed out:¹

It is extremely difficult to list all the facts of language and grammar which are used in spoken and written English. Not only is it difficult, but it is relatively useless, because many of the

¹ Charters (8), p. 216.

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"operations" of English present no difficulties. Consequently, it has been found that if an analysis of the errors of English composition, including both oral and written speech, is made, and if these errors, together with methods and reasons for the methods of correcting the errors, are taken up, the result provides us with a seemingly adequate language curriculum for the grades.

A number of investigations of errors in speech, oral and written, have been made, the first of these by Charters and Miller in the elementary schools of Kansas City, Missouri. Only oral errors in the sixth and seventh grades (Kansas City operated at the time on the 7-4 plan, not having the usual eighth grade) which had been recorded by the teachers in these grades will be reported on here. Almost three fourths, or 73 per cent, of all the errors fall into six classes as follows: failure of the verb to agree with its subject in number and person, 13 per cent; confusion of past tense and perfect participle, 22 per cent; wrong tense forms, 8 per cent; wrong verb, 11 per cent; double negative, 11 per cent; syntactical redundancy, 8 per cent. There were fifteen other classes of errors, but these recurred much less frequently — none more than 4 per cent. When attention is focused on the verbs in which confusion of past tense and perfect participle occurs — the largest class of errors — in all grades included, it is found that the percentage of incidence is heaviest on *see*, 36 per cent; *do*, 18 per cent; *come*, 15 per cent; *go*, 5 per cent; and *ring*, 9 per cent.¹

Moreover, a comparison of the Kansas City findings with investigations elsewhere discloses a significant similarity in frequencies of the different classes of error. Without stopping to report, even in this brief manner, on the classifications and frequencies of error in written work, it may be said that the findings of this type of investigation disclosed a need for an emphasis in the curriculum in language and grammar markedly different from that which has been traditional.

¹ Charters (9), pp. 102-104.

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Older methods cannot yet be abandoned. Other ventures into activity analysis for curriculum-making in the secondary school have been made. Some of these, as has been stated, will be referred to in the next two chapters. However, even a cursory consideration of the problem is enough to convince one that because of the huge proportions and complexity of the task we shall not be able for a long time to abandon our conventional procedures entirely. Thus far the new method has been applied primarily to vocations, to fundamental processes, and to informational fields. The results of vast researches must be accumulated because the scope of activity for which the secondary school must afford preparation far transcends these rather restricted areas. Meanwhile educational workers on this level will need to make as discriminating use as possible of the methods that now appear in unfavorable light and that we hope ultimately to leave entirely behind. Individual teachers, subject departments, and local and national committees of subject specialists will need to do the best they can, securing, as they proceed, as large an admixture of results of activity analysis as possible. This *combination* procedure is actually being followed in many places at the present time and must be followed for a long time to come.

Inspired by the strides we have been making in recent years — in the new procedures in curriculum-making as well as in measuring the results of instruction — some have predicted that the organization of content by “subjects” and “units,” the almost universal counters in high-school education today, is shortly to be dispensed with. It must be admitted that the profound shift in theory and methods of curriculum-making which we have been considering cannot fail to bring modifications in these methods of educational bookkeeping. However, in view of the Herculean nature of the task of applying the new procedures to the entire secondary-school offering, the terms in current use will be likely to retain somewhat their present meaning for years to come.

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QUESTIONS AND PROBLEMS

1. Ascertain the percentages of total high-school enrollment in the United States, as reported to the United States Bureau of Education, which are enrolled in each subject group, using the same method as was used to secure the materials shown in Fig. 52, but beginning at as early a period as data are available. These data will be found in the Bureau of Education publication there referred to.

2. Make a study for some other state by a method similar to that used in reporting the percentages in Fig. 53.

3. Endeavor to account in greater detail than was done above for the forces bringing about the changes in proportions of high-school pupils pursuing work in the subject groups as shown in Figs. 52 and 53.

4. Is a subject or subject group discredited if it is impossible to demonstrate for it the possibility of contributing to the achievement of *all* aims and functions of secondary education?

5. What support does the summary of the findings of the investigation by Thorndike lend to the *guarded* acceptance in Chapter IV of transfer of training as a purpose of secondary education?

6. Read the Report of the Committee of Ten on Secondary School Studies (Chapter I, Reference 23) and designate the type of procedure in curriculum-making used in preparing it.

7. What is the method of curriculum-making used by Denver as described in Reference 21 on page 384?

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XII

THE SECONDARY-SCHOOL OFFERING: THE ACADEMIC SUBJECTS

I. ENGLISH

Development and present status of English. Training in the vernacular has, as may be inferred from some of the materials of Chapter I, been far from a uniform constituent of the offerings in American secondary schools from the beginnings of the Latin grammar school up to the present time. Its only recognition in the earliest representatives of this first American secondary institution was its use in connection with other subjects; for instance, in translations from the classical languages. English had some small recognition as a regular subject in the Latin school before this institution was displaced by the academy, but played a larger part in the latter. That the high school should early have elevated English to an important position was inevitable. We have quoted Inglis as reporting reading, grammar, declamation, rhetoric and composition, and "criticism on English authors" as parts of the offering of the Boston English Classical [High] School in 1823-1824 (see pages 31-32), and Stout as reporting the following among a number of subjects classifiable under the heading of English for twenty high schools during the period 1860-1865 (see pages 32-33): rhetoric, grammar, English analysis, word analysis, reading, English literature, and elements of criticism. The more recent status, as to proportions represented by the pupils enrolled, was reported in the foregoing chapter. To these data may be added the fact that English is now usually required during three or four years

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of the four-year high school, constituting from a sixth to a fourth of all the work taken toward graduation. In addition to the requirements of composition (including related subdivisions) and literature in the usual courses, special elective courses are sometimes offered, such as journalism, public speaking, drama, the short story, etc.

Aims and values. It is increasingly customary to think of English as divided into two major fields which may be designated as *language* and *literature*, and to administer it so. At least one American writer, referring to these two divisions as "formal English" and "English literature," has stressed what seems to him the necessity of separating them in practice:¹

One result of this merging of two different subjects is that the means and methods of teaching one tend to deflect and neutralize those appropriate to the other. So evident has this become . . . that, were I responsible for the administration of a high school at the present time, I believe that my first step would be to place the teaching of literature on the one hand, and on the other all that pertains to English expression, under charge of different teachers, who would probably be quite unlike each other in temperament and interests. . . .

Whatever may be the merit of a specific proposal to assign the work of instruction in these two main divisions to different teachers, the belief that there *are* two divisions is rather widely held. It is clearly implied in the formulation of the "immediate aim" of high-school English which was set up by no less important a group than the National Joint Committee on English. This committee asserts that the immediate aim is "twofold":²

1. To give the pupils command of the art of communication in speech and in writing.
2. To teach them to read thoughtfully and with appreciation, to form in them a taste for good reading, and to teach them how to find books that are worth while.

¹ Snedden (15), p. 171.

² (24), p. 30.

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In view of this double nature of the subject two sets of aims will be presented. The first of these arose in an analysis of educational writings (books, articles, and prefaces of textbooks in the field) purporting to present statements of the objectives of English composition. These, when simmered down to the eleven to be found in Fig. 54, were submitted to a number of teachers of English who were asked to assign values to them. The subsequent computations give the values shown in the figure, the aim held in highest esteem being valued at approximately four times the number of points computed for the aim lowest in the list. It is a fact of no small moment that the objective of English composition most highly valued is the development of *the power of clear thinking*, which is in line with the modern understanding of the dependence of thought on language. *Skill in oral and in written expression* is next in order, after which comes *habits of accuracy in the mechanics of written expression*. If space allowed, each of these, as well as the other aims, might well be discussed at length. It must suffice to point out that the aim to develop *originality in the pupils' composition work* is not given a high place as often as are six other aims, that if some teachers could have their way *guidance* would be an important aim, and that *habits of neatness in written expression*, while not unimportant, is given the lowest position in the group of aims.

A composite of the objectives proposed for literature in forty writings is shown in Fig. 55. Weighted values were not obtained for these aims, as was done for those proposed for composition, although the proportionate frequency of mention will throw some light on the state of opinion in this regard. Passing by the first aim named, *general culture*, without discussion further than to say that it could have little meaning not comprehended by subsequent categories, one cannot fail to be impressed by the emphasis on objectives falling within the broad civic-social-moral aim of secondary

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education ; namely, *morality and character* (ideals, attitudes, standards for evaluating conduct, moral principles), *citizenship*, *American ideals and patriotism*, *social integration*, and,

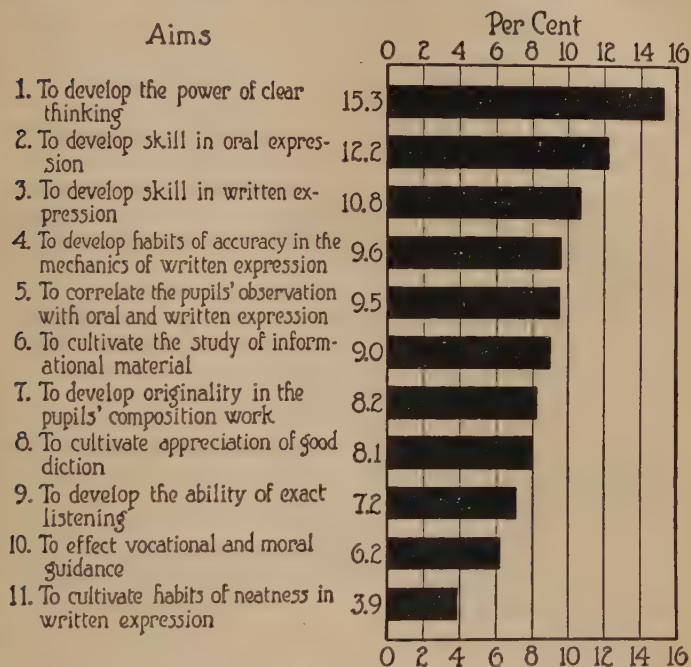


FIG. 54. Average number in a total of one hundred points given to each of eleven aims of English composition. (Computed from weighted values assigned by fifty-eight teachers of English.) (Adapted from a study by Harald Mortensen, reported in a master's thesis on file in the Graduate School of the University of Minnesota)

to some extent, *enlarged human experience*. Since these categories are not mutually exclusive, the objective last named has some meaning for *avocational enjoyment*, which is also in part dependent on literary evaluation (appreciation, discrimination). Related to both the large aims so far recog-

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nized is the *information* afforded by the literature studied. Three functions of the secondary school — perhaps four — also are recognized in the list of aims: guidance (see aim 10), recognition of the needs of adolescent nature (aim 11), as well as those calling for training in the fundamental processes and expression, and fostering transfer of training (aims 12, 13, and 14). Aims 15 and 16, in so far as they are valid, are other psychological functions to be kept in mind while striving to achieve some of those already named.

When the problem of aims and values of English is reviewed, it may be seen that with an appropriate content and method an important rôle is assignable to the subject in achieving the aims and functions of the secondary school. The civic-social-moral aim may be served directly by literature and also by the work in language through equipping the pupil with abilities in social intercommunication which are imparted by affording training in the fundamental processes that pertain to language. Achieving the aim of recreational and æsthetic participation and appreciation is mainly an obligation of literature, although the language phase should bear some relation to it, at least for a small proportion of pupils. Ordinarily this subject, as presented in the secondary school, is not to be directed at achieving the occupational aim, although there will be important incidental values of this sort in language for many pupils, and in literature for a small proportion of them. The guidance function of the subject is also important, chiefly through the try-out of interest and ability it affords. This is true for both phases of the subject. In connection with the composition phase there has sometimes been a special emphasis on guidance, by putting the pupil in touch with information about occupations and helping him to a tentative vocational choice concerning which he reads and writes. The vocational motive has been found to be stimulative of more efficient work in composition. The recognition of adolescent needs by appropriate selection of

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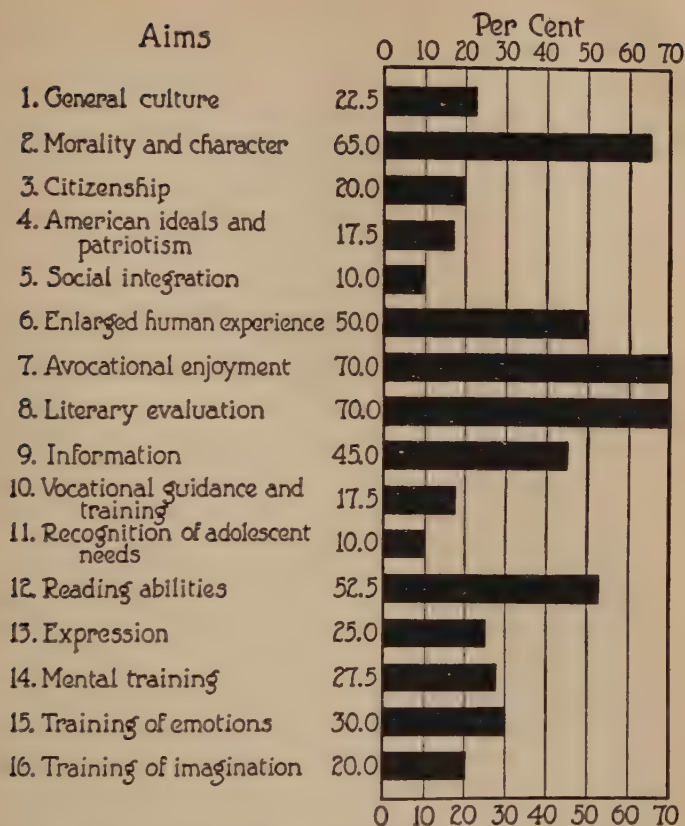


FIG. 55. Percentages of forty writings recognizing certain aims of the teaching of English literature. (From an unpublished study by Koos and Powers)

the literature studied and read has been mentioned. The vital contacts of both phases with training in the fundamental processes have been pointed out, and the relation to transfer of training is apparent. The subject in both its phases should be administered to perform the two remaining functions —

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democratization of secondary education and the recognition of individual differences — instead of defeating them, as is sometimes done by adherence to traditional standards of content and performance. The values of the subject are widely ramifying and, where achieved, go far to justify English as a constant through most or all high-school grades.

The content of English. 1. *Language.* The content of English, like its aims, is properly to be dealt with under two heads, that having to do with composition and that having to do with literature. Some understanding of what is presented under composition is afforded by the following percentage distribution of the textual content of this phase of English during the first two years in a number of high schools in the Middle West: (1) mechanics, 30.3 per cent; (2) diction, 5.1 per cent; (3) structure, 19.3 per cent; (4) forms of discourse, 36.0 per cent. Under mechanics were three subdivisions: (a) grammar, 19.0 per cent; (b) punctuation, 8.1 per cent; (c) spelling and pronunciation, 2.4 per cent. Diction had no subdivisions in the study. Under structure were three subdivisions with the following percentages: (a) sentence, 7.8 per cent; (b) paragraph, 7.9 per cent; (c) the composition as a whole, 1.2 per cent. The median percentages for the subdivisions of forms of discourse were (a) narration, 8.9 per cent; (b) description, 3.0 per cent; (c) exposition, 3.6 per cent; (d) letter-writing, 14.1 per cent.¹ Some schools recognize other subdivisions in the textual content,—for example, argumentation, news-writing, and oral composition,—but these schools were fewer than those for which percentages have been cited. The method of analysis was applied also to the textual content for the last two high-school years, the two divisions having the largest proportionate recognition being structure with 4.9 per cent, and forms of discourse with 51.4 per cent. Argumentation is the largest single subdivision under forms of discourse.

¹ Koos (26), Vol. II, pp. 429-430.

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It is not to be understood that textbook content comprehends all that is accomplished in this phase of English in the schools represented. There are, for instance, the exercises in oral and written composition, spelling, and related work, especially during the first two years. The results of the study show, however, that the majority of schools were disposed to discontinue emphasis on composition during later high-school years. There were, nevertheless, several schools representative of a more recent view which would continue this emphasis on some of the divisions (especially mechanics) over a longer period, in recognition of the necessity of frequent repetition of matters that can be made habitual only through recurrent drill.

The place of grammar in courses in English has been so much under debate that it seems advisable to return to it briefly, even though it was given some attention in illustrating the activity-analysis procedure in curriculum-making on pages 380-381. What was presented there threw light on the emphasis to be followed in selecting content that will make for the use of grammatical English on the part of pupils taking the work, and at the same time constitute progress toward the settlement of a long-standing dispute between those extremists on the one hand who would exclude all formal grammar from the curriculum, or almost all, and on the other those who would adhere to the extended development characteristic of the course in grammar a generation ago. The National Joint Committee on English, whose report has already been cited, may be seen in the following quotation to favor a point of view largely even though not completely in harmony with the *functional* conception underlying the study already cited above:¹

A sane attitude toward the teaching of grammar would seem to be to find out what parts and aspects of the subject have actual value to children in enabling them to improve their speaking,

¹ (24), pp. 37-38.

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writing, and reading, to teach these parts according to modern scientific methods, and to ignore any and all portions of the conventional school grammar that fall outside these categories. In general, the grammar worth teaching is the grammar of use — function in the sentence — and the grammar to be passed over is the grammar of classification — pigeon-holing by definition. . . . Language, it is well known, is learned mainly by imitation, largely unconscious, and children constantly use in their speech hundreds of expressions, many of them highly idiomatic, which only the linguistic scholar, familiar with the history of the language, can explain. Children should be set to examining only those grammatical forms and constructions whose use they can plainly see, and they should pursue such examination with the conscious purpose of learning to make better sentences. Any other aim is mere pedantry. If it be contended that English grammar should be taught for the sake of the study of foreign language, the answer is that the policy just defined will provide all the foundation that foreign-language teachers have a right to demand and much more than they will actually get through highly formal and technical studies.

In any treatment of composition mention should be made of recent tendencies to emphasize oral English or public speaking and journalism. In the former field there have been two types of development: the one as a part of the regular required work in composition, the other as separate courses in public speaking, debate, and dramatics. The Conference Committee regarded training in oral expression as a vital part of the regular courses and proposed a year-by-year outline for it. Although public speaking is occasionally administered only in separate courses, there has been an almost general disposition to follow the recommendation given above. Some schools have, in addition, provided separate courses in one or more of the activities named, sometimes in close association with debate and dramatics as extra-curricular activities. Similarly, there are classes in journalism which have important relationships with school publications. It is probably correct to say that most teachers of the course in journalism

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look upon it as a motivated type of training in composition rather than as preparation for professional journalism. In fact, each of the special lines of activity — at least public speaking, debate, and journalism — has possibilities in securing motivated expression, and therefore of making the class in composition something other than what Judd has characterized it — a "burying ground of human interests."¹

Reference to some of the means of enhancing the results of training in composition calls to mind another means, often advocated and sometimes introduced in recent years, the *correlation* of this phase of English with other subjects of study. Searson has reported that "specific working plans for the coöperative teaching of English in all subjects" is the need most frequently checked (in a total of twenty-one items submitted) by 8799 persons who indicated their judgments as to the "most urgent things needed to improve the teaching of English."²

There has been some discussion and practice in correlating the literature phase with other subjects, but most of the advocacy and practice has concerned the language phase. Addressing itself to this question the National Conference Committee urged "the coöperation of all teachers in establishing good habits of thought and of expression without which they are rarely attained. The teacher of history may reasonably be excused from giving more than sympathetic support to the teacher of poetry, but he cannot be excused from demanding of his pupils such observance of good usage, such thinking out of intellectual problems, such organizing of bodies of ideas, and such clothing of those ideas in appropriate language, as the instruction of the English teacher has made possible. What the pupil learns in English he must be required to use in his other classes."³

¹ Judd (9), p. 170.

³ (24), p. 28.

² J. W. Searson (29), pp. 105-106.

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2. *Literature.* For a long period of years the chief influence operative in the selection of the literature studied in the high school was the needs of college entrance. This direct control still exists in some quarters and, through tradition or otherwise, is still in varying degrees indirectly effective even in areas where independence of these college-entrance traditions has been declared. Some notion of the unacceptability of collegiate domination in this field may be gained from the fact that the *first* item of a total of thirteen in the "point of view" of the National Conference Committee deals with the problem. This item reads as follows: ¹

The college-preparatory function of the high school is a minor one. Most of the graduates of the high school go, not into a higher institution, but into "life." Hence the course in English should be organized with reference to basic personal and social needs rather than with reference to college-entrance requirements. The school, moreover, will best prepare for either "life" or college by making its own life real and complete.

We should, of course, make sure of the merit of the content by letting the canons of literary taste be one of our criteria for deciding upon the particular selections to be studied. The defect lies in disregarding other important criteria, such as the intelligence and maturity of the pupils, their spontaneous interests, and the chief aims and functions of the secondary school which this phase of the course in English may appropriately be expected to subserve. A conclusion arrived at by Uhl after an extended investigation of the materials of elementary-school courses in reading is probably applicable to much of the literature studied in high-school grades, although it is safest to infer this finally only after analogous facts have been gathered: ²

¹ (24), p. 26.

² Willis L. Uhl, Scientific Determination of the Content of the Elementary School Course in Reading, University of Wisconsin Studies in the Social Sciences and History No. 4, pp. 147-148.

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The most prevalent undesirable quality of reading material reported is its over-maturity. As evidence of this over-maturity there are not only the testimonies of teachers of lower grades to the effect that many selections are too difficult for their grades but also the testimonies of teachers of higher grades that the same selections are successful when used in these higher grades.

Perhaps these pieces of literature in college-entrance lists were not above the level of the typical selected high-school pupils of a generation ago, who in almost all cases were bound for college, but many are not adapted to the democratized secondary school of today — at least, not for that portion which should not or does not aspire to college entrance. The result is a resort by the teacher to analytical methods and formalism which largely defeat rather than achieve the most acceptable purposes of the literature phase of English as a high-school subject.

To recognize that strict adherence to the traditional lists of "classics" does not suit the spontaneous interests of high-school youth, one needs only to recall that the voluntary reading of high-school boys usually emphasizes adventure and that the reading of high-school girls emphasizes romance. One would not contend, of course, that the selections studied should be drawn solely or even largely from narrative types, but such interests can be much more generously recognized than they are. It is helpful in this connection to utilize the findings of such an investigation as that made by Crow, who secured the judgments of high-school pupils on the relative values (moral, æsthetic, leisure-time, and so on) of a large number of selections they had studied. These findings are sometimes strikingly in disagreement with traditional beliefs as to what young people derive from the selections represented.¹ In accordance with these and related considerations there has been some tendency to break with tradition in the literature selected for study in high-school classes.

¹ Charles S. Crow (19).

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Efforts to make the instruction in literature play a more vital part in the life, present and future, of the pupil have taken a variety of forms in addition to that of using selections for study better adapted to the broadened purposes of modern secondary education. Among these is what is often designated as "home reading." A common practice here is to require the reading and making of some sort of report on a number of books a term or a year (often one a month), the books to be selected by the pupil from a list not rigidly adhering to the canons of classic literature. When such a plan is generously and skillfully administered, it can assist materially in establishing habits of recreational reading. There is also evidence that in some schools young people are being trained directly to a more discriminating use of the modern in literature. Searson shows that "skills to read and understand newspapers" and "ability to read and understand the magazines" are among those "receiving the highest sanctions" of 7752 persons selecting from a large number of skills needed for "ordinary success in life."¹ The short story now being recognized as a common means of diversion in modern life is finding recognition in the courses of study in literature. Because of the widely differing abilities in silent reading, some attention is also being given to develop it during early high-school years.

English in junior high-school grades. One important characteristic of the work in English in the school system organized on the 8-4 plan is the number of different subjects classifying under this head in the upper grades and the marked reduction in this number in the first high-school year. In the seventh and eighth grades it is common to find reading, spelling, grammar, composition, and handwriting, with occasional additions, such as oral composition or "literature." In the ninth grade in this organization it is the common practice not to distribute the work to so many subjects, but, instead,

¹ Searson (29), pp. 102-103.

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to administer it in not more than two divisions — composition and literature. The amount of time given to all these divisions of English is much larger in the seventh and eighth grades than in the ninth grade. The difference in content and method is just as remarkable. Whereas in the upper grades the emphasis on the language phase has been on grammar, somewhat to the neglect of composition, in the ninth grade this emphasis has usually been reversed. Again, while the emphasis on the other phase of English in the upper grades has been on the attainment of reading skills, in the ninth grade this has been neglected for a more analytical, and sometimes even etymological, treatment of the literature studied. The upshot of such a comparison is a marked contrast between the kinds of training being given in this subject on the two levels, a contrast uncalled for by the shift in the nature and ability of pupils which takes place between the eighth and ninth grades, a shift which was shown in Chapter II to be far from cataclysmic.

In line with the functions of the new unit it was to be expected that junior high-school reorganization would tend to erase the marked contrasts described. There has been a tendency to administer the several divisions of English as a single subject and to reduce somewhat the total amount of time formerly devoted to them. These changes have been accompanied by a conscious effort to spread the grammatical content over the three-year period and even to extend it into the tenth grade, to secure a correspondingly more even distribution of training in composition by enlarging the emphasis on such work in the seventh and eighth grades, and to modify the treatment of literature so as to make the training in the respective grades more satisfactorily sequential. The result, where such changes have been made (which is unfortunately not in all junior high schools), is progress toward a better articulation of instruction in the grades concerned, as well as a superior type of training.

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II. THE SOCIAL STUDIES

Development and present status of the social studies. Although history, as well as English, had little direct recognition in the curriculum of the Latin grammar school, it soon found a place in the academy. Geography made its appearance almost contemporaneously, but was subsequently depressed to the elementary-school level. In Chapter I Gifford was quoted as reporting that general history and the history of the United States were among the subjects that, during the period 1826-1840, attained a prevalency in the academies of New York of from 75 to 100 per cent. The early high school also found a place for courses in geography and history. Toward the middle of the century, to a number of courses in history there had been added work in such fields as "political economy" and the "Constitution of the United States." The expansion in the social studies between 1860-1865 and 1896-1900 may be illustrated from the comparisons of percentages of the high schools represented in Stout's investigation, in which certain courses were offered, which are quoted in Table XXXII. The more recent development in this field, especially with regard to proportions of pupils enrolled, has been summarized in Chapter XI, pp. 359, 362, where it was reported for the public high schools of the country as a whole, and for Minnesota in particular, that these subjects, especially the nonhistorical courses, have been gaining ground. To bring the description down to date in other respects it should be stated (1) that general history after 1900 was rather commonly displaced by separate full-year courses in ancient history and in medieval and modern history, although there has been a partial subsequent revival in some quarters of the one-year course in general history in a somewhat modified form, stressing the modern period more than the ancient; (2) that a half-year course in "social problems," or "sociology," for a time found some favor, but is now, with economics

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TABLE XXXII. PERCENTAGES OF HIGH SCHOOLS IN NORTH-CENTRAL STATES OFFERING CERTAIN SOCIAL SUBJECTS IN 1860-1865 AND IN 1896-1900 ¹

COURSE	1860-1865 (20 schools)	1896-1900 (40 schools)
Ancient history	40	37½
Medieval history	15	5
Modern history	30	7½
United States history	15	45
English history	15	50
French history	—	10
General history	15	65
Universal history	10	—
Science of government	15	—
Civil government	—	60
Civics	—	25
United States Constitution	40	5
Political economy	20	40
History	10	5
History of civilization	5	—

and civics, being displaced by a full-year course in what is often called "problems of American democracy," a course which is a composite of economics, sociology, and civics; (3) that a course in "community civics" a half-year or a full year in length, sometimes accompanied by what is called "vocational civics" (a course in vocational information) has frequently found a place in the ninth grade; and (4) that the junior-high-school grades have been experiencing a realignment of the offering in this field, the change reported under (3) being in part stimulated by this realignment. Geography, also, has shown some tendency to reappear with more emphasis on social relationships, and courses in industrial or economic history are sometimes offered.

Aims and values. The major purpose of this large group of subjects has been well stated by the Committee on Social Studies of the Commission on the Reorganization of Secondary Education of the National Education Association:²

¹ Adapted from Stout (16), pp. 72-73.

² Arthur W. Dunn (37), p. 9.

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... From the nature of their content, the social studies afford peculiar opportunities for the training of the individual as a member of society. Whatever their value from the point of view of personal culture, unless they contribute directly to the cultivation of social efficiency on the part of the pupil they fail in their most important function. They should accomplish this end through the development of an appreciation of the nature and laws of social life, a sense of the responsibility of the individual as a member of social groups, and the intelligence and the will to participate effectively in the promotion of the social well-being.

More specifically, the social studies of the American high school should have for their conscious and constant purpose the cultivation of good citizenship. We may identify the "good citizen" of a neighborhood with the "thoroughly efficient member" of that neighborhood; but he will be characterized, among other things, by a loyalty and a sense of obligation to his city, State, and Nation as political units. Again, "society" may be interpreted to include the human race. Humanity is bigger than any of its divisions. The social studies should cultivate a sense of membership in the "world community," with all the sympathies and sense of justice that this involves as among the different divisions of human society.

In considering the place of a group of subjects in the training program it is not enough to give attention only to a single major aim: it is necessary also to canvass to some extent the specific objectives. Such a formulation of specific purposes is at hand in Fig. 56, which shows the percentage frequency (in a total of two hundred and forty-four lists) with which certain aims were indicated as being concurred in by teachers of ancient, medieval, modern, English, and American history. The aims were those proposed for history in the reports of certain important committees antedating the Committee on Social Studies, from whose report quotation has just been made. These aims in the figure are listed in the order of frequency with which they were concurred in by the high-school teachers to whom they were submitted, although they will not be considered in that order. Near the top of the list

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— second, in fact — is the large aim already emphasized by quotation, the *promotion of good citizenship*. An aim that should be thought of in connection with this one is ninth in the list, *to develop the spirit of nationalism*. Because

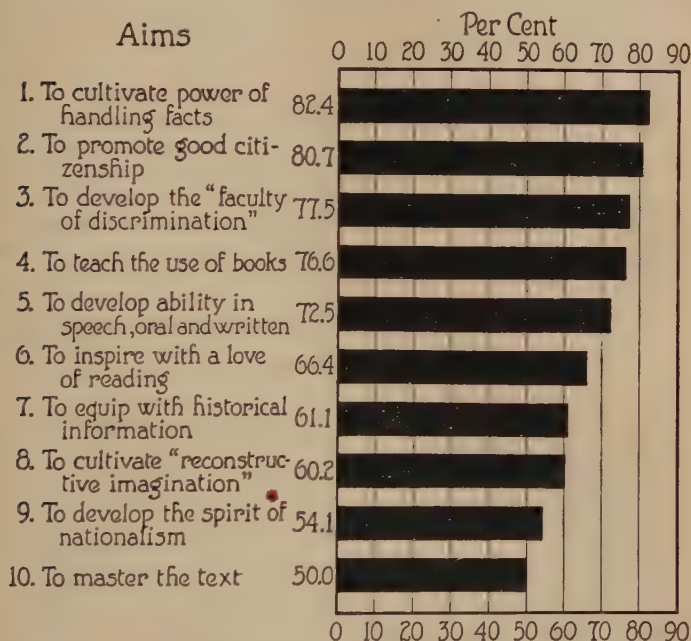


FIG. 56. Percentage of concurrence of teachers in certain aims in the teaching of history. (Computed from data used in preparing Table LXVIII, in Koos (10), p. 105)

this aim might be conceived of in a sense inimical to the broad definition of good citizenship of the Committee on Social Studies, which has been seen to include the "world community," it is pertinent to quote two additional sentences from its report:¹

¹ Dunn (37), pp. 9-10.

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The first step . . . toward a true "neighborliness" among nations must be a realization of national ideals, national efficiency, national loyalty, national self-respect, just as real neighborliness among different family groups depends upon the solidarity, the self-respect, and the loyalty to be found in each of the components. High national ideals and an intelligent and genuine loyalty to them should thus be a specific aim of the social studies in American high schools.

In similar vein Suzzallo has aptly said :¹

We must think particularly of our country's part in all the history that is yet to be made. As we look back upon our past and realize how much America has cared about humanity at large, we cannot quite think of a nationality for ourselves which shall be achieved at the cost of other peoples. . . . On the whole, we have been kindly in our diplomacy with the weaker nations we have touched. It is not in us to turn back from that idealism which makes our patriotism broad enough to include the good of the world.

If, nevertheless, we are to hold and perpetuate these fine humanistic qualities within our nation, we must protect the integrity of that state which fosters them. . . . It must be loyal, coöperative, and solid enough to endure. Without any temptation to aggress, it must be ready to defend the perpetuity of its institutions.

A specific aim related to the large aim of training for recreational and æsthetic participation and appreciation is Number 6 in the list, *to inspire with a love of reading*; one which represents an important aspect of the function of training in the fundamental processes is Number 5, *to develop ability in speech, oral and written*. Not unrelated to these is Number 4, *to teach the use of books*. Most of the remaining aims may be thought of as psychological in character — specific purposes that must be achieved the better to attain the larger goal of the secondary school which may appropriately be sub-

¹ Suzzallo, "Inaugural Address," *School and Society* (April 1, 1916), Vol. III, p. 472.

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served by courses in history. This is true of the aim *to cultivate the power of handling facts* (Number 1), which is concerned with the ability to organize one's knowledge; of the aim *to cultivate the reconstructive imagination* (Number 8) through history, by the extension of one's experience in time, as well as through geography, by the extension of one's experience in space; of the aim *to develop the "faculty of discrimination"* (Number 3); and even of the aim *to equip the student with a fund of historical information* (Number 7). The remaining aim, *to master the text* (Number 10), was subscribed to less often than any other in the list, its validity having been questioned in an even half of the blank forms returned. Unless the textual content is of a sort to serve other important purposes, this skepticism is to be commended. This aim should never be approved with an indiscriminating use of the term "mastery."

Specific purposes of the social studies other than history are not so widely different from those already presented as to warrant taking much space to canvass them. The course in vocational civics is, however, so new to this subject group and so different in the full scope of its service that it is desirable to give its purposes some special consideration. The aim usually foremost where the course is given is a knowledge of occupations helpful to the pupil in selecting his life work. On this account it is sometimes called the "life career" course. The course has, however, that large social value which comes from giving a wider comprehension of the world's work and the social significance of work and workers. It is the latter value which justifies classing the course as a social subject. It is thus appropriate to think of the course as affording training for good citizenship in the broader sense of this term as well as guidance in the choice of life work.

Epitomizing as to the values of the social studies, one may say that the largest single service renderable is toward achieving the civic-social-moral aim of secondary education. Other

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important values already pointed out are related to the recreational aim and to the functions of training in the fundamental processes and of exploration and guidance. To these may be added, because of the interest of adolescent youth in things social, the function of recognizing the nature of pupils during this stage of development. The fostering of transfer of training is implicit in several of the specific aims referred to as psychological.

With such an important rôle possible to the social studies, especially with respect to achieving the civic-social-moral aim, there is good ground for introducing them as a large constant element in the work taken by all pupils. It is disturbing, therefore, to find that this is far from a general practice. For example, Thomson found for ninety high schools of the Middle West that the average number of units of specific prescription in this field during 1922-1923 was 1.3, this amount having been increased from 1.0 during the preceding half-decade.¹ The percentages of schools in which specific prescriptions were made were, for the six subjects most frequently required, American history, 72.2; civics, 50.0; "citizenship," 16.7; modern history, 13.3; economics, 10.0.²

The program of social studies. In line with belief in the dominant aim of the social studies and in the necessity of achieving that aim, a number of important committees have recommended programs of social studies for the schools. One of the first of several such programs proposed in recent years is that of the Committee on the Social Studies of the Commission on the Reorganization of Secondary Education, from whose report quotations have already been made.³ Junior-high-school reorganization having made considerable progress by the time this committee began its work, its recommendations were made for the full junior-senior high-school period of

¹ Lyle G. Thomson, *The High-School Programs of Study in Operation in Certain Cities of the North Central States*, p. 42. Master's thesis on file in the Graduate School of the University of Minnesota, 1923.

² *Ibid.* p. 51.

³ Dunn (37), pp. 15-36.

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six years, although the committee emphasized the fact that the validity of its recommendations and suggestions was not dependent on the adoption of this organization of the schools. The "alternative programs" for Grades VII-IX were as follows:

- GRADE VII: (1) Geography — $\frac{1}{2}$ year.
European history — $\frac{1}{2}$ year.
Or, (2) European history — 1 year.

Where the first plan is followed, the two courses may be taught in sequence, or in parallel throughout the year; where the second plan is followed, geography is to be "taught incidentally to, and as a factor in, the history." The European history recommended is "European Beginnings in American History." Civics is to be taught as a phase of these or other subjects, or segregated in one or two periods a week, or both.

- GRADE VIII: American history — $\frac{1}{2}$ year.
Civics — $\frac{1}{2}$ year.

Geography is to be taught incidentally to, and as a factor in, these subjects.

- GRADE IX: (1) Civics — $\frac{1}{2}$ year.
Civics, economic and vocational aspects — $\frac{1}{2}$ year.
Or, (2) Civics, economic and vocational, and economic history — 1 year.

During the first half year under plan (1) the civics of the preceding year is to be continued, but "with more emphasis upon state, national, and world aspects." History is to be introduced also in relation to the topics of the courses named. The two subjects in the second plan are to be taught either in sequence or in parallel.

Except for that portion of the work in civics which is to be economic and vocational, it is to be of the "community"

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type, a term used to distinguish it from "civil government," which had to do largely with the mechanics of government. The committee pointed out that the significance of "community civics" does not lie in its geographical implications, "but in its implication of community relations, of a community of interests. . . . It is a question of point of view, and community civics applies this point of view to the study of the national community as well as to the study of the local community." Some notion of the scope of content contemplated may be gained from the "elements of welfare" to be studied as topics: health, protection of life and property, recreation, education, civic beauty, wealth, communication, transportation, migration, charities, and correction. Treatment of the mechanism of community agencies is to be included by studying how governmental agencies are conducted, how they are financed, and how voluntary agencies are conducted and financed. The economic and vocational civics recommended differs from the vocational civics referred to in the foregoing section in that it would stress the life-career aspects somewhat less and the civic relations of vocational life more. Nevertheless the two courses would have much in common.

The offering recommended by this committee for the second cycle of three years is as follows:

I. European history to the end approximately of the seventeenth century — 1 year.

II. European history since the seventeenth century — 1 (or $\frac{1}{2}$) year.

III. American history since the seventeenth century — 1 (or $\frac{1}{2}$) year.

IV. Problems of American democracy — 1 (or $\frac{1}{2}$) year.

Although not followed in detail in any large proportion of school systems, the recommendations of this committee have been widely influential in securing a realignment of social studies and courses. The items least often accepted are

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perhaps the reduction of geography in the seventh grade and of American history in the eighth grade to half-year proportions. Important reports have been made by other committees; for example, (1) by the Committee on History and Education for Citizenship in the Schools — a joint committee of the American Historical Association and the National Board of Historic Service in coöperation with the Commission on a National Program for Education of the National Education Association, and (2) by the Committee of the American Sociological Society on the Teaching of Sociology in the Grade and High Schools of America. The large extent of similarity in the recommendations is shown in a quotation from the report of the committee last named :¹

Grades VII, VIII, and IX: Geography with special emphasis on the social side; American history and government, with some attention to the European background, and emphasis on the economic and social side; and elementary social science or "community civics." This we understand to be in substantial accord with the recommendations of the Schafer committee [the former of the two just named] and the Dunn report for the [Committee on Social Studies of the] N. E. A. Commission [on the Reorganization of Secondary Education].

The course in elementary social science (commonly called community civics) should be given in the ninth grade under the six-three-three plan, but under the eight-four plan should . . . be divided between the eighth and ninth grades, the other half year in each case being devoted to American history. . . .

Grades X, XI, and XII. For this cycle the N. E. A. Commission recommends:

X. European history.

XI. American history.

XII. Problems of democracy, social, economic, and political.

The Schafer committee recommends:

X. Modern world history.

XI. American history from the beginning of the national period.

XII. Social science.

¹ Ross L. Finney (39), pp. 260-261.

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It will be seen that these two programs are in substantial agreement, and we approve them with the following recommendations:

The tenth-grade history course should consist of an outline survey of social evolution. . . .

The eleventh-grade history course should emphasize the social and economic aspects of American life, should devote much less time than is customary to colonial history, and very much more than is customary to the period since the Civil War. Incidentally, it should familiarize the student with the machinery of government.

The twelfth-grade course should be general social science, devoted chiefly to sociology and economics. . . .

One of the problems faced by those who are at work on these realigning programs is what to do as to the duration of the treatment of the three divisions of history: ancient, modern, and American. With the other social studies demanding and deserving a place in the revised programs, it appears impossible to allot to each of these divisions a full year. One committee would telescope the two-year treatment of European history into a single year, in a sense recommending reversion to general history in modified form. Another would be more disposed to omit ancient history from the required program. In this connection the practice in the University High School of The University of Chicago should be of interest. In this institution the sequence in history extends over two school years. During the first year — the sophomore high-school year — a course is given called the survey of civilization, which "consists for the most part of cross-sectional studies of the chief phases of human progress from the earliest times to the middle of the eighteenth century." The course during the next year is called modern history and "comprises the story of Europe and the United States since 1750." These courses are preceded in the first high-school year by a course in community life and followed in the last year by a course in American institutions, these

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courses being roughly analogous, respectively, to the courses in community civics and problems of American democracy.¹

Determining the content of the social studies. It is not enough to determine what subjects shall make up the program in the social studies in our secondary schools. Without an appropriate content these studies would avail us little toward achieving their major aim, which has been seen to be good citizenship broadly defined. In recent years a number of investigations have been made that throw some light on what should go into these courses. A brief illustrative extract will be taken from one of these investigations only. Bassett made an analysis of party platforms for the purpose of ascertaining the problems confronting the American electorate at the polls. It was his opinion that these platforms have preserved for us "the carefully formulated opinions of . . . politicians . . . as to what our problems are."² In the following list are given the ten "topics" (of a total of twenty-six) to which were devoted the largest percentages of total linear content in the national platforms of the post-reconstruction period, 1868 to 1916.³

TOPIC	PER CENT	TOPIC	PER CENT
Public finance	13.2	Moral reform	6.6
Corporations	9.1	Public office	5.9
Labor	8.8	Natural resources	5.0
Monetary system	8.8	Territories	4.9
Foreign relations	8.5	Defense	3.7

Such materials are pregnant with meaning for the make-up of courses in the social studies — not only for civics, as advocated by the investigator, but for other nonhistorical courses, such as economics or problems of American democracy, as well as for courses in history. This is curriculum-making by analysis of activities for an intelligent electorate.

¹ Howard C. Hill, "Curriculum in History," in *Studies in Secondary Education* — I, Supplementary Educational Monograph No. 24, pp. 88-91. The University of Chicago Press, 1923.

² B. B. Bassett (32), p. 64.

³ *Ibid.* p. 77, Table VIII.

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Social studies in junior-high-school grades. Recommendations of important committees toward a redistribution of emphasis in the social studies in junior-high-school grades having already been epitomized, it must suffice to refer to a single additional significant influence for reorganization in this field on the junior-high-school level. This is one growing out of the coöperative researches of Harold Rugg, Earle Rugg, and Emma Schweppe. These researches have been directed to discover what are called the "problems of contemporary life" and the materials and methods of properly presenting them to pupils on this school level. The method of finding the "insistent problems of the day" was by an analysis of a large number of books dealing with the issues of social life and written by a host of specialists—"frontier thinkers."¹ The following are some of the hypotheses on which the course developing out of these investigations is being constructed:²

1. Current modes of living, contemporary problems and their historical backgrounds, can be learned more effectively through one unified social science curriculum than through the separate school subjects, history, geography, civics, and economics. . . .

2. Each major topic of the course must be of established social value to the rank and file of our people. . . .

3. An objective analysis of social needs facilitates the assignment to each of the major phases of life its proper amount of attention in the curriculum. . . .

4. Each topic and sub-topic of the course shall be illustrated by detailed episodes and by a wealth of maps, graphs, and pictorial material far in excess of the present use of them. . . .

5. The reading materials and the exercises should be set so as to stimulate analysis and reasoning. . . .

6. Historical background will be clearer if the history of only one set of related topics is traced at one time. . . .

7. One problem or topic, or at most one restricted group of problems and topics, should be considered definitely and thoroughly at one time. . . .

¹ (46), pp. 260-273.

² Ibid. pp. 187-191.

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A city system in which the content of the course in social science in junior-high-school grades is acknowledged to center around the results of these investigations is that of Denver.¹ The "problems" in the three-year program in "social science" are distributed to "units," those for each grade being as follows:²

GRADE VII

- Unit I: Community life
- Unit II: The industrial life of the American people
- Unit III: The interdependence of modern industrial peoples
- Unit IV: The changing agricultural nations

GRADE VIII

- Unit V: The westward movement and the growth of transportation
- Unit VI: The history of the Industrial Revolution
- Unit VII: The growth of American democracy

GRADE IX

- Unit VIII: Forms of American government and outstanding citizenship problems
- Unit IX: Waste and conservation of America's resources
- Unit X: Immigration and Americanization
- Unit XI: International relations

To illustrate the problems of which these units are made up one may cite the first three of fourteen under Unit V:

PROBLEM I. How does America compare in historical age with the other countries of the world?

PROBLEM II. Why did the white man come to America?

PROBLEM III. Why did the English begin to settle in North America?

On a large chart accompanying this published course of study is classified the content of the units under the conventional subject headings, showing how the curriculum has drawn upon civics, history, geography, and vocational civics. The contrast of the realignments of the social studies in junior-high-school grades that have been described (those of

¹ (34), p. 10.

² Ibid. p. 7.

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the important committees, of the Rugg proposals, and of the Denver outline) with the traditional offering is a striking one. To assist one to an appreciation of the differences it is only necessary to recall that the older distribution is to geography in the seventh grade and sometimes also in the eighth grade; to American history in the seventh and eighth grades, with occasional recognition of the mechanics of government in the eighth grade; and to ancient history in the ninth grade. One of the several serious defects of this older distribution, made obvious by the contrast, is the lack of articulation between the content it provides for the eighth and ninth grades.

III. SCIENCE

Development and present status. As with the social studies, science had no place in the curriculum of the Latin grammar school. It made its first appearance in the academy, in which it came to have considerable recognition. The most rapid development in this field took place in the high school, for the reason, doubtless, that the rapid increase in scientific knowledge and the advent and rapid development of the public high school were contemporaneous. The offering in science began in the earliest high schools with "natural philosophy," which was the predecessor of the course in physics of today, and an occasional additional representative. During the period of the Civil War the offering (as is shown in Table XXXIII) usually included physiology, physical geography, natural philosophy, chemistry, geology, astronomy, and botany, other courses appearing much less frequently. By the end of the century geology and astronomy were no longer typical, although they were still sometimes offered, and zoölogy was the only course which experienced a really notable gain, to some extent at the expense of "natural history."

The more recent trend in science in the four-year high school as to courses offered is shown in Fig. 57, adapted from

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TABLE XXXIII. PERCENTAGES OF HIGH SCHOOLS IN NORTH-CENTRAL STATES OFFERING CERTAIN COURSES IN SCIENCE IN 1860-1865 AND IN 1896-1900 ¹

COURSES	1860-1865 (20 Schools)	1896-1900 (40 Schools)
Physiology	85	70
Physical geography	90	75
Physiography	—	2½
Natural philosophy	100	—
Physics	5	95
Chemistry	85	67½
Geology	70	22½
Astronomy	70	27½
Botany	70	82½
Zoölogy	20	42½
Biology	—	10
Natural history	25	2½
Geography	10	5

data assembled by Hunter, which compares the percentages of schools offering certain courses in science in 1908 (276 schools) and 1923 (368 schools) and at the same time shows the high-school grades for which they were listed. By directing attention to the total lengths of the bars one may note any important increase or decrease in the fifteen-year period in the proportions of schools offering the courses. We see that general science mounted from a course infrequently given to one found in a majority of schools. A rather similar experience befell biology. Physics and chemistry showed some gain measured in this way. On the other hand, physiography, botany, zoölogy, and physiology suffered large deflections, botany and zoölogy shrinking more than physiography and physiology. It is not far from correct to say that general science gained at the expense of physiography and physiology, and biology at the expense of botany, zoölogy, and physiology. Viewed from the standpoint of the typical duration of the courses, it may be said that full-year composite courses

¹ Adapted from Stout (16), p. 72.

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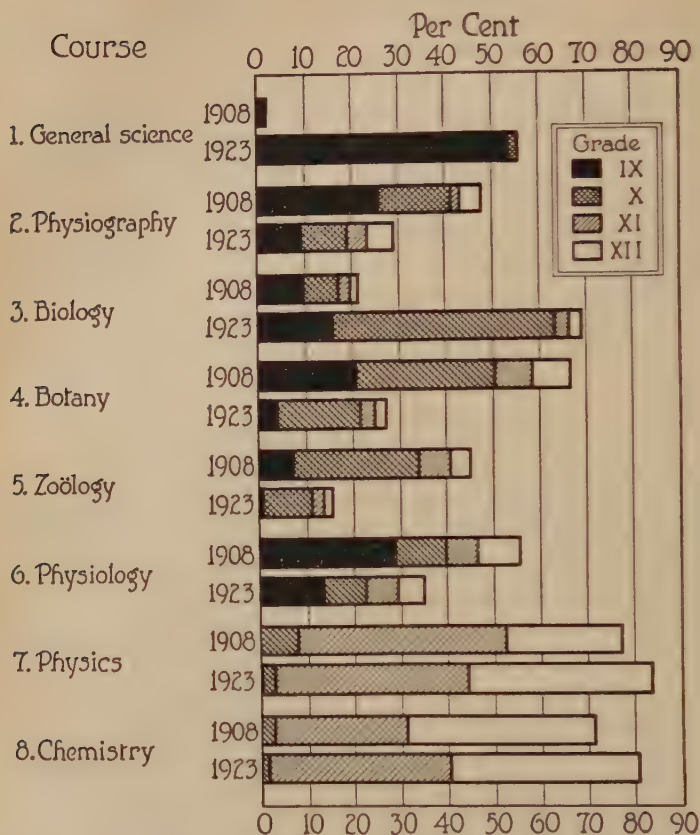


FIG. 57. Percentage distribution of science courses in each year of the high school, 1908 and 1923. (From George W. Hunter (55), p. 373)

tended to displace the half-year specialized courses. Hunter reported a small scattered offering of courses other than those named. The dominant trends are almost identical with those reported for science in the foregoing chapter, where interpretations were made from the percentages of pupils in public high schools enrolled in the several courses.

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Another manner of interpreting the figure is to construct from it the sequence in science more recently emerging. This may be done by directing attention in particular to the dominant years for which the courses are listed. The interpretation here is that in the four-year high school the emerging program is general science in the first year, general biology in the second year, and physics and chemistry almost interchangeably in the third and fourth years.

The data presented do not disclose the fact that applied courses have made their appearance in small proportions of high schools; for example, household chemistry, household physics, agricultural botany, and the like.

Aims and values. A good impression of the scope of the values claimed for secondary-school science may be obtained from the fact that in its report the Committee on Science of the Commission on the Reorganization of Secondary Education referred to the relationship of this work to all but a single one of the seven objectives proposed in the "cardinal principles" of the Commission :¹

Science instruction is especially valuable in the realization of six of these objectives, namely, health, worthy home membership, vocation, citizenship, the worthy use of leisure, and ethical character.

Brief excerpts from the statements made in explaining the relationships are here given :²

1. *Health.* . . . The control and elimination of disease, the provision of adequate hospital facilities and medical inspection, the maintenance of the public health, all necessitate widely disseminated knowledge and practice of the basic principles of personal hygiene and public sanitation. It is the duty of the secondary schools to provide such instruction for all pupils. This purpose finds realization chiefly through science and civics. . . .

2. *Worthy home membership.* Science touches the efficiency of the home and of life within the home at every angle. . . .

¹ Otis W. Caldwell (48), p. 13.

² Ibid. pp. 12-14.

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3. *Vocation.* Science instruction should contribute both to vocational guidance and to a broad preparation for vocation.

In the field of vocational guidance such instruction should make many valuable contributions to a more intelligent understanding of the world's work and such an understanding should be so presented as to be of direct assistance in the wise selection of a vocation. . . .

In the field of vocational preparation, courses in shop physics, applied electricity, physics of the home, industrial and household chemistry, applied biological sciences, physiology, and hygiene will be of value to many students if properly adapted to their needs. . . .

4. *Citizenship.* The members of a democratic society need a far greater appreciation of the part which scientifically trained men and women should perform in advancing the welfare of society. . . .

5. *Use of leisure time.* Science opens the door to many useful and pleasurable vocations. . . .

6. *Ethical character.* Science study should assist in the development of ethical character by establishing a more adequate conception of truth and a confidence in the laws of cause and effect. Science, along with other studies that exalt truth and established laws, should help develop sane and sound methods of thinking upon the problems of life.

But it is not enough to consider the aims of science in general. Because of the diversity of content represented in the several courses in which the whole field is administered in the high school, the problem of setting up aims of particular courses cannot be ignored here, even if illustration must be restricted to a single course, such as general science. The particular formulation to be considered is one rather widely representative of claims made for the course by its friends, a formulation submitted by Howe to a number of teachers for evaluation by ranking in the order of importance. The method of ranking followed by the teachers was to number the aim they believed to be most important, "1," the next most important, "2," and so on. The aims are presented in

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Table XXXIV in the order of the average of the ranks assigned, which is not their order in the blank of inquiry.

The three aims held in highest esteem are (1) *understanding, appreciation, and control of the everyday environment*, (2) *appreciation of the applications of science in industrial and social life*, and (3) *transmitting a fund of valuable information about nature and sciences*. As the everyday environment is ordinarily wide in scope and touches all phases of life, including civic-social-moral relationships, health, recreation, and occupation, the achievement of the first of these aims is an obligation of vast and ramifying proportions. Since, to be *valuable*, the information referred to must similarly bear demonstrable relationships to one or another of these phases of life, the third aim likewise implies important responsibilities for the course in general science. Somewhat more restricted, but nevertheless vital, is the second of these aims. These high expectations are to some extent warranted by the composite, as opposed to the specialized, nature of the content of the typical course in general science.

TABLE XXXIV. AVERAGE RANK OF CERTAIN AIMS OF THE COURSE IN GENERAL SCIENCE AS EVALUATED BY EIGHTY TEACHERS OF THE SUBJECT¹

	AVERAGE OF RANKS ASSIGNED
1. Understanding, appreciation, and control of everyday <i>environment</i>	1.8
2. Appreciation of the <i>applications</i> of science in industrial and social life	3.5
3. A fund of valuable <i>information</i> about nature and sciences . .	3.7
4. Training in the use of <i>scientific method</i> in solving problems . .	4.5
5. <i>Preparation</i> and foundation for later study of special sciences	5.0
6. <i>Interest</i> and motivation in school work to prevent elimination	5.1
7. A <i>vocational</i> survey of sciences to guide and inspire life work .	5.4
8. <i>Appreciation</i> of the unity and beauty of science and of its master minds	6.3
9. Training in cold, scientific thinking involving self-elimination	7.6

¹ Clayton M. Howe (54), p. 451.

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It is significant that teachers of general science place these three aims above (aim 4) *training in the use of scientific method in solving problems*, an aim which would have larger recognition for courses given in more advanced grades of the school system, especially on the college level. It is, nevertheless, regarded highly enough to be assigned a place just above the middle of the full group of aims. The guidance value of the course, referred to in aim 7, did not impress this group of teachers as did the aims already mentioned, although it must be remembered that to be placed low in this ranking does not mean *unimportance* as much as it means *less importance*. Perhaps the aim placed last (aim 9) would have been given a higher place if it had not been cast in somewhat forbidding terms, but it is obviously less applicable than are the others to a first course in science administered to immature pupils.

Whoever reads extensively, or makes inquiries of teachers on the aims and values of science, encounters reiterated claims of a general or abstract nature much more numerous and much wider in range than the few to be found in the list for general science which has just been examined. They are set up more frequently by those dealing with the whole field of science or with advanced and specialized courses than by those proposing aims for a first general course, but even for such a course they are not entirely lacking. One large group of the values claimed may be classed as disciplinary, and is illustrated by the belief of many teachers of high-school chemistry (as shown in the report of an investigation by the writer), that the particular qualities of intellectual training which this subject makes possible are in "powers" or "habits" of observation; in inductive, deductive, or "independent" thinking; in the "scientific habit of thought"; and so on. Much has been made in many quarters, for instance, of the "experimental," or "scientific," attitude. A recent writer on mental hygiene, while emphasizing

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ing the "attitude of facing reality" as essential to "integration of personality," adds to this phase of the claims for science the following:¹

... It is a matter of [mental] hygiene, as well as of sound pedagogy, to develop this scientific attitude or lay the foundations for it in the early years. . . . From the outset children may be trained to correct their thinking by reference to objective facts, to recognize that what they think or imagine does not alter reality, that their own feelings have nothing to do with the facts.

A second group of values closely related are the inculcation of certain concepts, more or less extensive — "the development of scientific or philosophic insights, perspectives, and attitudes of mind that serve as safeguards to the intelligent interpretation of contemporary life."² Illustrations of these are the concepts of law and order in nature, of relations of cause and effect, and of evolution. Such attitudes and concepts can and should have a profound influence on character. The acceptable point of view — as may be concluded from the treatment of and qualifications concerning mental discipline presented in Chapter IV — is that such values are achievable, but that to realize them we must definitely set out to do so, adapting the content and methods of presentation to this important end.

Put in terms of the aims of secondary education accepted for this volume, it may be said that the field of science is rich in possibilities. It can afford training for all the aims — civic-social-moral responsibility, health, recreation, and occupation. From the foregoing canvass it may be seen that it can also be helpful in guidance and in fostering transfer of training. It should be obvious from the type and variety of subject matter represented that science should also be in a position to assist in recognizing individual differences, so

¹ Burnham, *The Normal Mind*, pp. 668-669. D. Appleton and Company, New York, 1925.

² George R. Twiss (58), p. 83.

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that it would be adapted to the needs of a democratic secondary education. Moreover, its content is pertinent to the developing sex nature and to the social interests of the adolescent. Finally, it should possess at least as much value as any other academic subject in affording, through correlation with English, valuable training in the fundamental processes of oral and written speech.

It is to be deplored that a field of such great promise should enter as little as it does into specific requirements in high-school programs of study. Thomson found the average of such requirements for ninety high schools selected at random in the Middle West in 1922-1923 to be but 0.6 of a unit. There had been no recent tendency to increase the requirements, since the average amount in the same high schools five years earlier was identical.¹ The following were the percentages of these schools prescribing certain subjects in 1922-1923: general science, 27.8; physiography, 3.3; physiology, 7.8; biology, 5.5; physics, 20.0.² Although many pupils are pursuing courses in science in excess of the requirements, much is still to be hoped for in bringing young people under the influences of the subject.

Proposed programs in secondary-school science. The most authoritative recommendations concerning the sequences in science to be provided are those of the Committee on Science of the Commission on the Reorganization of Secondary Education. This is the same committee whose formulation of aims of secondary-school science was quoted in the foregoing section. For the *four-year high school of medium size* (two hundred to five hundred pupils) the following sequence is proposed:

First year: general science, including hygiene.

Second year: biological science, including hygiene. Courses may consist of general biology, botany, or zoölogy.

¹ Thomson, *The High-School Programs of Study in Operation in Certain Cities of the North Central States*, p. 43. Master's thesis on file in the Graduate School of the University of Minnesota, 1923.

² Ibid. p. 51.

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Third year: chemistry, with emphasis on the home, farm, and industries.

Fourth year: physics, with emphasis on the home, farm, and industries; general geography or physiography; or advanced biological sciences.

The differences between this sequence and that recommended for the *large comprehensive four-year high school* are to be found only in the third and fourth years, when, instead of the courses in chemistry and physics, as described, "differentiated elective courses to meet special needs and interests" are recommended; namely, general chemistry, household chemistry, industrial chemistry, physics of the home, industrial physics, etc. For the *small high school* (less than two hundred pupils) likewise the offering in the first two years is to be the same, and in the third and fourth years there would be elective courses in chemistry and physics only. Alternation in successive years of the two advanced courses is recommended for small high schools. In the *junior-senior high school* (if advice of the committee is followed) the chief deviations from the program for the large comprehensive high school would be the depression of general science to the seventh or the eighth grade and of biological science to the ninth grade, making the differentiated elective courses available in the senior-high-school period. The work in general science should either be administered in five periods a week in either the seventh or the eighth grade, or in three periods a week in both grades. In all these programs general science and biology are the two constant courses. The dominant sequence here — general science, general biology, chemistry, and physics — is that shown to be emerging in practice in the materials presented at the opening of the present treatment of science, except that the places of chemistry and physics, as concerns the frequency with which they are offered in the third and fourth years, are practically interchangeable.

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The content of general science. Because they are the newer members of the sequence and also because they are both composite courses, some attention should be given to the problem of content of the courses in general science and biology.

The fact that the course in general science is true to name is shown in Table XXXV in the approximate percentages of the several divisions of the field of science in the content of three texts in the subject. At the same time the emphasis is seen to be different, Text A having physics as its largest constituent; Text B, physiology and hygiene; and Text C, physiography. Textbooks could be found, especially in some of the earlier editions, with content much more predominantly drawn from a single field than any one of the three here represented.

TABLE XXXV. APPROXIMATE PERCENTAGE DISTRIBUTION TO THE SEVERAL SCIENCES OF THE CONTENT OF THREE TEXTBOOKS IN GENERAL SCIENCE

SCIENCE	TEXT A	TEXT B	TEXT C
Astronomy	2	1	11
Physics	42	12	23
Physiography	6	16	33
Chemistry	12	14	10
Botany ¹	6	12	11
Zoölogy	22	18	3
Physiology and hygiene	8	24	9
Home economics	2	3	—
<i>Total</i>	100	100	100

One should not conclude from such data that the texts are commonly divided into several sections each of which bears a name indicating that the content appearing under it is to be classified as physics or as chemistry or as zoölogy. This

¹ Including agriculture and forestry.

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organization of the subject has been forsaken for a topical or unitary distribution of content. The report of the Committee on Science, for example, recommends a topical organization, the seven "sample" topics listed being combustion, water, the air and the weather, light and its benefits, work and energy, magnetism and electricity, and nature's balance of life. The composite way in which such a unitary organization draws upon several sciences may be seen in what is suggested to be introduced under the second topic:¹

Water. Three forms of water; how used in home and school; changes from one to another; relation of heat to these changes; changing water to steam; evaporation; ice machines; changing vapor to water; condensation; dew; rain; frost; snow; distillation and applications; transpiration; running water; where from, where going, and why; rate of flow; erosion and its effects; erosion and forest; erosion and crops; erosion and farm values; influence of bodies of water in climate; fruit belt about large bodies of water; composition of water; analysis and synthesis; water in relation to health problems; distribution of bacteria; typhoid as illustration; water supply and sewage disposal in this city; source of water; impurities; filtration; water system; sewers; various methods of disposal; the one used in this city; industrial uses of water; water as a solvent; relation to household use; relation of this to plant and animal life; relation of water to geographic location of industries; water pressure as used in machines.

The emphasis in biology. Among the types of information secured by Hunter in his study of science in the secondary school from which citation was made above in reporting on the present status of this field, were responses to a request to underscore the phases of biological subject matter on which most emphasis was being placed. The same question was asked of "practically the same schools" both in 1908 and 1923, a comparison of the percentages indicating the several lines of emphasis, making it possible to rate any important

¹ Caldwell (48), pp. 27-28.

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shifts of emphasis during the fifteen-year period. The phases listed in the blank in both periods were those shown in Fig. 58, which reports also the percentages of schools emphasizing

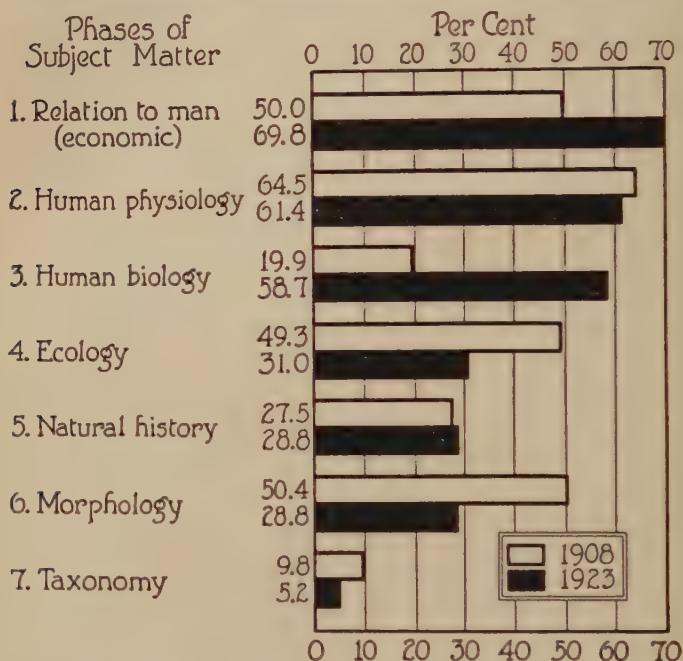


FIG. 58. Percentages of schools placing emphasis on various phases of biological subject matter in 1908 and 1923. (Adapted from Fig. 3 in Hunter (55), p. 461)

each phase. In 1923 an additional phase — health — was included in the list, and 72.6 per cent, or almost three fourths of the schools, indicated emphasizing it. Hunter interprets the trend in the following words:¹

The situation indicates a decided change in the teaching of biological subject-matter in secondary schools. Health and

¹ Hunter (55), p. 461.

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human biology and the relations of biologic phenomena to the well-being of man are the phases which loom largest in the perspective of high-school teachers. The teaching of morphology is apparently only used in so far as it may explain physiology. The teaching of natural history, particularly in its ecological and taxonomic aspects, has lost ground.

A single investigational venture into the basis of curriculum-making in biology is of such importance that brief reference should be made to it before leaving the question of the proper emphasis of content in this subject. It was not sufficiently comprehensive to afford more than a partial basis for the selection of content, but it is at least in part suggestive. In an analysis of more than three thousand articles on biological subjects appearing in a number of daily papers published in widely scattered cities of the United States, Finley and Caldwell found the following percentage distribution of the articles: health, 29.3; animals, 24.7; plants, 21.6; food, 17.4; organization of producers, 2.6; general nature, 2.4; evolution, 1.5; fictitious biology, 0.5.¹ Even this brief citation corroborates to some extent the recent trend of emphasis in biology as shown in Hunter's study. A report on the details would disclose additional corroboration.

Science in junior-high-school grades. The proposals of the Committee on Science for the program in science in junior-high-school grades have already been reported. There is some evidence that that portion of the program which concerns the teaching of general science in the seventh and eighth grades has already been brought about in many of these intermediate units. Hunter summarizes his own findings on this point by saying that it is evident "that general science with a health background is the chief offering in science" in these grades.² There are, however, some reorganized systems in

¹ Charles W. Finley and Otis W. Caldwell (51), p. 17.

² Hunter (55), p. 371.

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which physiology and hygiene are still taught as a separate course in the seventh grade, to be followed in the eighth with general science, or occasionally with physiography instead. It is difficult to see why the content of such courses is not merged in a course in general science, especially since this course can care for what is accomplished in the separate courses and much more besides.

IV. MATHEMATICS

Development and present status. Although it is one of the oldest groups of subject matter in our secondary schools, bearing the prestige of a tradition next in age to that of the classical languages, mathematics beyond arithmetic did not make its appearance in the curriculum of the Latin grammar school until late — not until some time after the academy had recognized it generously. Besides the courses in arithmetic, algebra, geometry, and trigonometry, both the academy and the early high school sometimes offered surveying, navigation, and the like. The more advanced courses — trigonometry, analytics, surveying, and engineering — persisted into the sixties (see Table XXXVI), but all but trigonometry had disappeared by the close of the century. Trigonometry also experienced a marked decline during the period. Reporting only for the four-year high school, the present-day offering seldom goes beyond the following courses: elementary algebra, plane geometry, "higher," "intermediate," or "advanced" algebra, solid geometry, and trigonometry, although extension of the offering is being advocated and occasionally accomplished. Attention was directed in Chapter XI to the gradually declining proportions of high-school pupils taking mathematics. In recent years courses in "general," "unified," or "composite" mathematics have found place in the first and second years. It has already been reported that by 1924 in Minnesota (a state in

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TABLE XXXVI. PERCENTAGES OF HIGH SCHOOLS IN NORTH-CENTRAL STATES OFFERING CERTAIN COURSES IN MATHEMATICS IN 1860-1865 AND 1896-1900¹

COURSES	1860-1865 (20 Schools)	1896-1900 (40 Schools)
Arithmetic	85	65
Algebra	90	100
Plane geometry	—	25
Solid geometry	—	22½
Geometry	95	72½
Trigonometry	60	22½
Analytics	10	—
Surveying	40	—
Engineering	10	—

which mathematics of this type has made relatively rapid gains) almost a fourth of the total registration in mathematics was to be found in such courses.

Teachers' opinions on the aims and values of mathematics. It may be taken for granted that consideration of the aims of subjects the history of which goes back into the period of general belief in a faculty psychology must lead directly to a discussion of their disciplinary values. This need, as it touches mathematics, may be illustrated in the distributions of opinions of high-school teachers as to which is more important—content or discipline—in each of the courses frequently taken by high-school pupils. These distributions are shown in Fig. 59, and from them one can conclude (1) that for all courses excepting trigonometry discipline is (or was, as late as 1915-1916) held in higher esteem than content, and (2) that the proportions holding this opinion are greater for the courses in geometry than for those in algebra.

What this point of view leads to in a formulation of aims of a subject may be shown in the distribution of aims proposed by the teachers whose responses to the previous

¹ Stout (16), p. 71.

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question have just been reported. The same courses are represented in these returns as in the responses just reported, the numbers of blanks used in the tabulations being elementary algebra, 112; plane geometry, 122; advanced algebra, 37; solid geometry, 10; trigonometry, 11. These aims were set down in a baffling variety of expression, but in the efforts

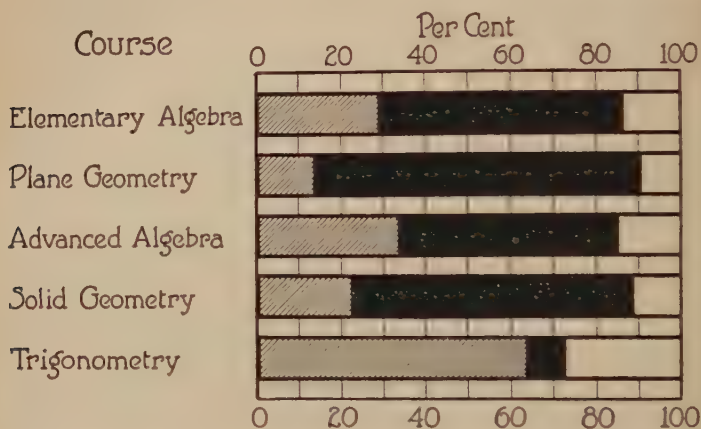


FIG. 59. Percentage distribution of teachers' opinions on the question as to which is more important in high-school courses in mathematics, content or discipline. (Shaded, content more important; black, discipline more important; in outline, content and discipline of equal importance.)

(Computed from Table XXXV in Koos (10), p. 56)

at tabulation were grouped as shown in Table XXXVII. The *working knowledge* of the subject as an aim must be thought of as proximate and is acceptable only to the extent that it assists in achieving some other aim like those under the second and third in the list. The second refers to imparting certain abilities needed in subsequent mathematics or science and to preparation for college. The third comprehends direct uses in life situations, inclusive of vocational application whenever mentioned. The fourth group, disciplinary aims,

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includes more than half of all the aims reported in the large number of blanks of inquiry returned.

Aims proposed by the National Committee. The most authoritative recent formulation of aims of mathematical instruction is that of the National Committee on Mathematical Requirements working under the auspices of the Mathematical Association of America. This formulation pertains to arithmetic as well as to the other content implicit above. It cannot be quoted in full here, but is given in skeleton form.¹

TABLE XXXVII. EXTENT TO WHICH CERTAIN TYPES OF AIMS WERE REPORTED BY TEACHERS OF HIGH-SCHOOL MATHEMATICS IN 292 BLANKS OF INQUIRY ²

GROUPS OF AIMS	FREQUENCY OF MENTION	PER CENT
1. A working knowledge of the subject . . .	107	17.8
2. Preparation for subsequent academic work	103	17.2
3. Stressing the practical aspects	78	13.0
4. Free play for disciplinary values	312	52.0
<i>Total</i>	600	100.0

From the quotations it may be seen that although the organization is not identical with the grouping just reported and is more comprehensive, there is some resemblance. It is also obvious that groups of specialists in mathematics are not likely soon to forsake the conviction of disciplinary values on which they have so long relied in justifying their subject. The aims are grouped as (A) practical or utilitarian, (B) disciplinary, and (C) cultural. The committee insists that the three classes are not mutually exclusive, any "truly disciplinary aim" being, in a broad sense, also practical.

A. Practical aims. By a practical or utilitarian aim, in the narrower sense, we mean . . . the direct usefulness in life of a fact, method, or process in mathematics.

¹ (67), pp. 6-10.

² Adapted from Koos (10), p. 54, Table XXXIII.

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1. The immediate and undisputed utility of the *fundamental processes of arithmetic* in the life of every individual demands our first attention. . . .

2. Of almost equal importance to every educated person is *an understanding of the language of algebra* and the ability to use this language intelligently and readily in the expression of such simple quantitative relations as occur in everyday life and in the normal reading of the educated person. Appreciation of the significance of formulas and ability to work out simple problems by setting up and solving the necessary equations must nowadays be included among the minimum requirements of any program of universal education.

3. The development of the ability to understand and to use such elementary algebraic methods involves a study of the *fundamental laws of algebra* and at least a certain minimum of drill in algebraic technique, which, when properly taught, will furnish the foundation for an understanding of the significance of the processes of arithmetic already referred to. . . .

4. The ability to understand and interpret correctly *graphic representations* of various kinds, such as nowadays abound in popular discussions of current scientific, social, industrial, and political problems, will also be recognized as one of the necessary aims in the education of the individual. . . .

5. Finally, among the practical aims to be served by the study of mathematics should be listed familiarity with the *geometric forms* common in nature, industry, and life; the elementary properties and relations of these forms, including their *mensuration*; the development of *space-perception*; and the exercise of *spatial imagination*. . . .

B. Disciplinary aims. . . . In formulating the disciplinary aims . . . the following should be mentioned :

1. The acquisition, in precise form, of those *ideas or concepts in terms of which the quantitative thinking of the world is done*. Among these ideas and concepts may be mentioned ratio and measurement (lengths, areas, volumes, weights, velocities, and rates in general, etc.), proportionality and similarity, positive and negative numbers, and the dependence of one quantity upon another.

2. The development of the *ability to think clearly in terms of such ideas and concepts*. . . .

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3. The acquisition of *mental habits and attitudes* which will make the above training effective in the life of the individual. Among such habitual reactions are the following: a seeking for relations and their precise expression; an attitude of inquiry; a desire to understand, to get to the bottom of a situation; concentration and persistence; a love for precision, accuracy, thoroughness, and clearness, and a distaste for vagueness and incompleteness; a desire for orderly and logical organization as an aid to understanding and memory.

4. Many of these disciplinary aims are included in the broad sense of *the idea of relationship or dependence* — in what the mathematician in his technical vocabulary refers to as a “function” of one or more variables. Training in “functional thinking,” that is, thinking in terms of and about relationships, is one of the most fundamental disciplinary aims of the teaching of mathematics.

C. Cultural aims. By cultural aims we mean those somewhat less tangible but none the less real and important intellectual, ethical, esthetic or spiritual aims that are involved in the development of appreciation and insight and the formation of ideals of perfection. . . . The realization of some of these aims must await the later stages of instruction, but some of them may and should operate at the very beginning.

Under this heading are mentioned (1) *appreciation of beauty* in geometrical forms of nature, art, and industry, (2) *ideals of perfection* as to logical structure, precision of statement and of thought, and so on, and (3) *appreciation of the power of mathematics* — that is, “the rôle that mathematics and abstract thinking, in general, have played in the development of civilization, in particular in science, in industry, and in philosophy.”¹

Commenting first on the *practical aims* as quoted, one may be disposed to acquiesce in the first one, which has to do with arithmetic, especially in view of the findings of Wilson’s study as reported in Chapter XI (p. 379). Something must also be conceded to the practical value of algebra, although

¹ (67), p. 10.

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it would be easy to overestimate the knowledge of this subject needed in the "normal reading of the educated person." Bobbitt, in reporting the findings of an investigation by Adams (an investigation which discovers a large use for arithmetic as an "instrument of thought"), writes as follows:¹

As Mr. Adams made the analysis of the publications [a large number of general periodicals, including dailies and weekly and monthly magazines] for the sake of discovering the arithmetic involved, he kept a sharp lookout for the use of any portions of algebra, geometry, and trigonometry. Of algebra, he found only one slight mention. . . . As compared with the rich and endless array of arithmetic, this was very meager reference indeed. It appears that algebra is not one of the instruments of thought employed in the presentation of information to laymen.

The geometrical element entered in only to the extent of ordinary arithmetical mensuration of lengths, surfaces, and volumes. Except for this, only a single item of geometrical material appeared in the publications. . . . Of trigonometry or other higher mathematics, nothing whatever was found.

Schorling subsequently came to the defense of the belief that a considerable knowledge of supra-arithmetical mathematics is needed for one's reading by reporting the frequency of appearance of mathematical terms in the issues of *Popular Mechanics* and *Popular Science*.² An examination of the list of terms leads to the inference that little more than a properly enriched course in arithmetic would be necessary to understand the terms, even in these rather specialized periodicals.

The understanding and manipulation of formulas mentioned in the second aim may likewise be conceded, as may the study of the fundamental laws of algebra, the third aim, if this is understood in a simple sense. The ability pertaining to graphic representations (the fourth practical aim) would scarcely take one away from arithmetic. Nor should we need to go beyond arithmetic to accomplish the fifth practical

¹ Bobbitt (60), p. 143.

² Raleigh Schorling (69), chap. iii.

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aim. Moreover, no less an authority in mathematics than David Eugene Smith (a member of the National Committee, but writing before its organization) in touching on the movement to improve geometry by emphasizing its practical applications has made the following admission:¹

... It will serve its greatest purpose in making teachers think and read, and in adding to their interest and enthusiasm and to the interest of their pupils; but it will not greatly change geometry, because no serious person ever believed that geometry was taught chiefly for practical purposes, or was made more interesting or valuable through such a pretense.

Addressing next the formulation of *disciplinary aims*, one may revert to the investigation by Thorndike summarized in Chapter XI, from which it was concluded that the amount of general improvement due to studies is small, and that "the differences between studies in respect of it are small." Although the group of subjects including algebra, geometry, and trigonometry was third in the list of groups as to amount of improvement, being preceded only by (1) arithmetic and bookkeeping and (2) chemistry, physics, and general science, the differences between it and the subject groups affording less general improvement were not large enough to warrant selecting subjects on a basis other than their values in special training. The tests used in this investigation were, of course, not inclusive of all the values included in the formulation of disciplinary aims of mathematics, but there must have been enough relationship to expect a greater difference if the general training values of mathematics are as large as is claimed in the formulation. If it should be contended that the differences in favor of this group of subjects would have been greater if (as should have been the case) the achievement of these disciplinary aims had been more consciously aimed at in the schools represented, the same thing could be claimed

¹ David Eugene Smith, *The Teaching of Geometry*, p. 11.

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for any other subject group. One leaves the discussion of this problem of the transfer of training in this field with the feeling that although transfer values may properly be conceded, advocacy of no subject should be based chiefly on its disciplinary aims, as was shown to be true for the courses in algebra and geometry in the teachers' opinions cited at the opening of this consideration of aims and values.

Other values. The National Committee definitely announced that in presenting the formulation of aims which has been quoted, it was primarily concerned with the aims valid for large sections of the school population and for general education "as distinguished from the specific needs of vocational, technical, or professional education."¹ Yet these functions of mathematics cannot be left out of account.

1. Among those who need to be served is the group preparing for certain trades; for example, machinists, plumbers, sheet-metal workers, and the like. The Committee on the Problem of Mathematics in Secondary Education (of the Commission on the Reorganization of Secondary Education) had the following to say concerning this need:²

The general run of need here contemplated can be gathered from the requirements laid down for machinists in one of the more recent vocational surveys — simple equations, use of formulas, measurement of angles, measurements of areas and volumes, square root, making and reading of graphs, solution of right triangles, geometry of the circle. Much practice would of course be necessary to make even this small amount of mathematics function adequately.

This committee points out that the ordinary high-school courses are ill adapted to these needs and recommends that, besides completion of the courses meeting the common requirements of all, the pupils preparing for these trades be given special courses providing the training required.

¹ (67), pp. 5-6.

² (64), p. 15.

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2. Here also should be considered the needs of those who will pursue subsequent courses in high school for which certain prerequisites in mathematics are needed ; for example, more advanced mathematics and the physical sciences. Rugg and Clark investigated this propædæutic value of mathematics,¹ and one may conclude from their findings that the algebra required for this purpose is simple and small in amount — no more than can conveniently be included in the common requirements of two or three grades of the junior-high-school period.

3. A related and, at the same time, different purpose is that pertaining to preparation for higher institutions. Most colleges at this writing still prescribe for admission two or more units of conventional mathematics. While this prescription continues secondary schools will be obliged to respect it in advising their pupils who are likely to go on. They will need to do this even though, in view of the variation in the work now taken by college students, it often turns out to be almost wholly nonfunctional, except perhaps that it serves as an instrument of selection — a clumsy one, at best — of college students. Scientific curriculum-making ought in time to make it possible to formulate the requirements strictly in terms of valid function, rather than out of respect to tradition.

Another function of mathematics — preferably of courses in the earlier secondary-school years — is provided in their value for exploration and guidance ; that is, for assisting the pupil, in the light of his ability in the subject, to select his later work in this and related fields and his life work as well. An obvious illustration is the high degree of relationship between his ability in mathematics and the likelihood of his success in engineering curricula.

A reconsideration in summary. The relationship of mathematics to the achievement of the aims and functions of the

¹ Harold O. Rugg and John R. Clark (68), pp. 135-144.

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secondary school is not so apparent as for the subjects previously canvassed. Vital relationships there must be; but for the three aims other than vocational preparation — namely, the civic-social-moral, the recreational, and the health aims — they are dependent on achieving the function of training in the fundamental processes. Even in this connection the content required is largely arithmetical. Where the aims call for supra-arithmetical mathematics the content is simple and not extensive. The different vocations, of course, have differing demands in this field. At one extreme are many occupations requiring no mathematics in excess of that which should be prescribed as general education, and at the other are professions demanding extended training in mathematics. Perhaps, for the present, it is somewhat appropriate to classify under this vocational aim the mathematics required by those going on to college, the justification being that at least some make subsequent use of it in their professional training or activities.

The functions other than training in the fundamental processes, already mentioned, which may best be served by mathematics are guidance and transfer of training. As has been pointed out, there is a tendency, in setting up the purposes of this subject, to overestimate the latter in comparison with other values accruing from the content. It is possible, through a modification of content in terms of ability of pupils, to recognize individual differences and to accelerate the democratization of secondary education, where conventional extended requirements applied to all will defeat these functions.

Proposed program in secondary-school mathematics. 1. *The junior high school.* The National Committee included in its report recommendations concerning the program in mathematics for the six-year period of secondary education. For the junior-high-school grades five different plans were suggested, of which only three are quoted :¹

¹ (67), pp. 29-30.

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PLAN A

First year: applications of arithmetic, particularly in such lines as relate to the home, to thrift, and to the various school subjects; intuitive geometry.

Second year: algebra; applied arithmetic, particularly in such lines as relate to commercial, industrial, and social needs.

Third year: algebra, trigonometry, demonstrative geometry.

By this plan the demonstrative geometry is introduced in the third year, and arithmetic is practically completed in the second year.

PLAN C

First year: applied arithmetic (as in Plan A), intuitive geometry, algebra.

Second year: algebra, intuitive geometry.

Third year: trigonometry, demonstrative geometry, applied arithmetic.

By this plan algebra is confined chiefly to the first two years.

PLAN D

First year: applied arithmetic (as in Plan A), intuitive geometry.

Second year: intuitive geometry, algebra.

Third year: algebra, trigonometry, applied arithmetic.

By this plan algebra is confined chiefly to the last two years.

A characteristic which all these plans have in common is the introduction into each school year of content from at least two and often three subdivisions of the subject. That this practice of making up the course in each year of material from more than a single subdivision already has a considerable vogue may be judged from a table presented in Chapter VII, in which was reported the percentage analysis of textbooks used in reorganized and unreorganized schools.¹ This leads to the suggestion that in recent years there has been a movement away from the rigid separation of mathematics in "subjects" and toward "general," "unified," or "corre-

¹ See page 230.

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lated" courses. This movement has gained some ground in the four-year high school, being initiated in this country in the University High School of The University of Chicago shortly after the opening of the century, but it appears to have made much greater progress in the junior high school. The National Committee is of the opinion that "there can be little question that the results already achieved by those who are experimenting with the new methods of organization warrant the abandonment of the extreme 'water-tight compartment' method of presentation."¹ Among arguments mustered in support of the composite courses are the important interrelations of the several divisions of the subject, without some understanding of which no one can comprehend the significance of the field as a whole; the guidance value of a view of the whole subject; the better psychological (as opposed to logical) organization of instruction; and the like.

It is contemplated by the committee that the three years of mathematics in the junior high school as proposed in these plans will be required of all pupils. Although no very good case can be made for a requirement of a separate course in elementary algebra to which all pupils attending the ninth grade would be held, a requirement of the ninth-grade courses proposed would be somewhat more acceptable. Probably almost all pupils should take all three years of the course. But there are pupils with special disabilities in this field who should not be held to such a requirement. There are likewise pupils with less than average general ability who should continue their education through the junior-high-school period without pursuing the third year of the sequence. To meet this situation, either the third year of mathematics ought not to be set as a requirement, practically all pupils being induced by advisers to take it, or, where it is prescribed, advisers should be given authority to exempt the types of pupils referred to from the requirement.

¹ (67), p. 13.

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While considering the problem of the extent of prescription in mathematics, it is pertinent to cite evidence from the Middle West pointing to a decline in recent years in the amount of mathematics prescribed for graduation. The writer has shown elsewhere¹ that of 106 four-year high schools reporting the extent of their requirements for 1915-1916, 5 were requiring no mathematics; 5 were requiring 1 unit; 69, 2 units; 12, $2\frac{1}{2}$ units; 12, 3 units; 1, 4 units; and 2 reported that the number of units required varied with the curriculum elected. For the 104 schools reporting in definite terms the average prescription was slightly in excess of 2 units. Thomson showed for 90 high schools in the same region that the average number of units prescribed dropped between 1918-1919 and 1923-1924 from 1.4 to 1.1 units. During the same interval the percentages of schools requiring elementary algebra had decreased from 75.5 to 62.2, and the percentage requiring plane geometry decreased from 55.5 to 38.9.² It may be said that as to the extent in years (not content) of the requirement in mathematics, a majority of this group of schools already conforms to the recommended prescription of the National Committee as more than 60 per cent do not prescribe plane geometry for all pupils.

2. *Senior high school.* After a description of plane demonstrative geometry, algebra, solid geometry, trigonometry, elementary statistics, elementary calculus, history, and biography, with some mention of "additional electives," such as mathematics of investment, shop mathematics, surveying and navigation, and descriptive or projective geometry, the National Committee suggests five arrangements of the program in the senior high school, of which three follow:³

¹ Koos (10), p. 47.

² Thomson, *The High-School Programs of Study in Operation in Certain Cities of the North Central States*, pp. 40 and 51. Master's thesis on file in the Graduate School of the University of Minnesota, 1923.

³ (67), p. 40.

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PLAN A

Tenth year: plane demonstrative geometry.

Eleventh year: statistics, trigonometry, solid geometry.

Twelfth year: the calculus, other elective.

PLAN B

Tenth year: plane demonstrative geometry, solid geometry.

Eleventh year: algebra, trigonometry, statistics.

Twelfth year: the calculus, other elective.

PLAN D

Tenth year: algebra, statistics, trigonometry.

Eleventh year: plane and solid geometry.

Twelfth year: the calculus, other elective.

The courses listed are recommended as electives for pupils who have completed the junior-high-school sequence as outlined. During these senior-high-school years more attention can be paid than in junior high school to logical organization of subject matter. While the committee admits that most schools will want to present the divisions listed as separate subjects, it is sympathetic to the experiments tending to present the material in combined courses.

3. *Four-year high school.* The National Committee sets up no special program for the four years of the traditional high school, but recommends emphatically that the work in mathematics for the seventh, eighth, and ninth grades in systems still operating on the 8-4 plan be organized to include the materials suggested for the junior high school.

V. FOREIGN LANGUAGE

History and present status. In the foreign languages, particularly Latin and Greek, we have the origin of the secondary-school curriculum in America. The offering in the early Latin grammar school contained little or nothing else, the chief emphasis being on Latin, and the secondary emphasis on

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Greek. The modern foreign languages French and German made their first appearance in the academy, later to find a place in the high school. Tendencies to change of status of five languages during the period 1860-1900, without considering the number of years of work offered in each, are suggested in Table XXXVIII. As far as these groups of schools in the North-Central states are concerned, Latin and German gained some ground, Greek and French lost slightly,

TABLE XXXVIII. PERCENTAGES OF HIGH SCHOOLS IN THE NORTH-CENTRAL STATES OFFERING COURSES IN CERTAIN FOREIGN LANGUAGES IN 1860-1865 AND IN 1896-1900¹

LANGUAGE	1860-1865 (20 Schools)	1896-1900 (40 Schools)
Latin	80	97½
Greek	35	25
German	35	57½
French	20	10
Spanish	5	—

and Spanish, which appeared in one school at the opening of the period, was not offered in any of the forty schools representing the situation at the close of the century. If the data had been drawn from the eastern section of the country, there would have been a more frequent offering of Greek and French and perhaps a less frequent appearance of German. The more recent trend throughout the nation has been set forth in Chapter XI, the measures reported being the percentages of the total enrollment in public high schools represented by those enrolled in foreign language. These percentages declined notably between 1910 and 1922. The decline was greater for ancient language, but was appreciable for modern language, even though the tendency of increments for French and Spanish between 1915 and 1922 was to compensate in part for the losses for German. Of the almost

¹ Stout (16), pp. 73-74.

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590,000 registrations reported in modern foreign language in 1922, about 333,000 were in French, about 243,000 were in Spanish, and less than 14,000 in German. Only occasionally are other modern languages offered, such as Italian, some Scandinavian tongue, Bohemian, and so on. Fewer than 2000 registrations were reported for Greek in 1922, in a total of well over 2,000,000 pupils in public high schools. Proportionate registrations in the foreign languages are larger in private schools, as was reported in Chapter X. The falling off would have been even more rapid if the foreign languages had not the support of being required for admission to many colleges. High schools of good size infrequently prescribe foreign language for graduation, except in specialized curricula. Not one of the ninety high schools in communities of 2500 and over in the North-Central states included in Thomson's study made a specific prescription in this field, courses in foreign language having been placed in the variable and elective portions of the program. There are, of course, in this and other sections of the United States public schools (more often the smaller schools) in which foreign language is still being prescribed, but the proportion is rapidly diminishing. *This is a noteworthy shift since the days of the Latin grammar school when all the student's time was devoted to study in ancient language — a shift in three centuries from a curriculum exclusively or almost exclusively in foreign language to a curriculum in which, in a host of excellent schools, none is universally prescribed.*

At the present time the most common length of offering in Latin extends over four years; the next largest group (many of them small schools) make available only two years of Latin; and third in order are those offering three years.¹ Although schools sometimes make available the larger amounts — three or four units — in the modern languages, the two-unit offering is proportionately more common.

¹ (73) pp. 278-279, Table IX.'

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Aims and values of Latin. The most authoritative formulation of the aims of Latin is that of the Classical Investigation conducted by an advisory committee of the American Classical League. After first classifying and listing a large number of purposes of Latin as (1) "instrumental and application," (2) "disciplinary," and (3) "cultural" objectives, this committee proposed "for practical purposes" a simpler and more compact formulation:¹

PRIMARY IMMEDIATE OBJECTIVE

1. Increased ability to read and understand Latin.

INSTRUMENTAL AND APPLICATION OBJECTIVES

2. Increased understanding of those elements in English which are related to Latin.
3. Increased ability to read, speak, and write English.
4. Increased ability to learn other foreign languages.

DISCIPLINARY OBJECTIVE

5. Development of correct mental habits.

CULTURAL OBJECTIVES

6. Development of an historical and cultural background.
7. Development of right attitudes toward social situations.
8. Development of literary appreciation.
9. Elementary knowledge of the simpler general principles of language structure.
10. Improvement in the literary quality of the pupil's written English.

The first of these objectives requires for its justification the demonstration of important relationships between high-school instruction in Latin and one or more of the criteria of subject values, the aims and functions of the secondary school. A statement will be made on this issue after the remaining objectives have been briefly reviewed and after

¹ (73), pp. 78-79.

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a canvass of the aims of modern foreign language. In prosecuting its investigation the committee stimulated and fostered a large number of studies designed to be evaluative of the *instrumental and application objectives* (2, 3, 4). It is impossible to deal with all these here, but they can at least be illustrated and an inference be drawn as to their general significance.

1. Henmon, for example, tested several thousand Latin and non-Latin pupils in each of various years of the high-school course on their ability to interpret typical Latin elements found by Walker in an examination of the reading material contained in leading newspapers and popular magazines. The study shows, to quote the conclusion as stated by the committee, "that Latin pupils are distinctly superior to non-Latin pupils in their ability to interpret the Latin elements in English reading. However, we agree with Professor Henmon that this objective, involving as it does a more or less direct use of Latin, should be attained in a far higher degree than is the case at present. . . ." ¹

2. A second investigation was that by Coxe, which really included two investigations. The first of these endeavored to ascertain the influence of the study of Latin on the spelling of English words of Latin derivation and English words of non-Latin origin. To this end the Buckingham-Coxe Spelling Scale, devised for this purpose, was given in fifty-eight schools in the English classes of the year in which Latin was begun. Different forms of the scale were given at the opening, at the middle, and at the end of the school year. The scale consists of 50 words, 25 of which are derived from non-Latin sources and 25 from Latin words studied sometime during the high-school course, 10 of the latter being derived from the Latin words studied during the first year. The two groups into which the pupils were divided — those taking Latin and those not taking it — were equated on the basis of initial

¹ (73), p. 41.

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spelling ability. The Latin pupils showed an average gain for the year of 3.6 words; the non-Latin, of 2.6 words, or one word less. Most of the gain was made during the first semester. On words of non-Latin origin the Latin pupils gained 0.2 of a word, and the non-Latin pupils, 0.1 of a word.

Coxe's second study was conducted as a controlled experiment. The groups of pupils were as follows: I. *Latin control group*, which was composed of pupils beginning Latin, following usual methods, except that teachers were directed not to relate Latin to the spelling of English words. II. *Latin experimental alpha group*, including pupils of the same grade as the control group, taught by a definite method of pointing out the similarity of Latin words and their derivatives, the material consisting of 153 English words, all of them derived from the pupils' textbook. In this group teachers were cautioned not to develop rules or principles that would show the relations between source and derivative. III. *Latin experimental beta group*, using the same material as II, but following methods involving the development of principles. An example of the principles in the list supplied is: "Initial s after 'ex' is lost. *Exspecto* has an s after 'ex.' In the derivative *expect* the s is lost." IV. *English (non-Latin) control group*, not taking Latin and making no special effort to teach spelling other than that regularly required by the school. V. *English (non-Latin) experimental group*, using the same material as that prescribed for the two Latin experimental groups, but following a method not presupposing Latin and involving the best current practice in the teaching of spelling. The portions of the findings of this experiment to be drawn upon here resulted from testing these five groups on the Buckingham-Coxe Scale three times at points about three months apart. Pairing the members of I and IV, the control groups, on the basis of initial spelling ability, it was found that on words derived from Latin words studied somewhere in the high school the ninth-grade pupils in I gained 3.0

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words, and in IV, 2.7 words. This is a slight advantage for the Latin control group. On non-Latin words the results are reversed, the Latin pupils tending to lose and the non-Latin pupils to make small gains. Referring now to the results for the remaining groups, it may be said that the pupils of II showed "a little superiority" over the pupils of the control group (I), and the pupils of III "a distinct superiority" over both. We quote concerning the results for group V :¹

The results show that the experimental English classes make spelling gains superior to those made by the Latin classes, which merely point out the relationship of the Latin to English spelling. On the other hand, their results are somewhat inferior to those of the Latin classes in which principles are developed. These results apply to Latin words in general. On words derived from Latin studied in the first year, both the experimental groups show superior gains. On words which were included in the practice material, the non-Latin English experimental group is very distinctly inferior in its gains to the two Latin experimental groups. On non-Latin words, all the Latin groups, including both experimental groups, are inferior in gains to the English experimental group.

Touching the influence on non-Latin words referred to in the last sentence, it may be said that Latin pupils, excepting those in group III, tend to lose, the indication being that Latin interferes slightly with the spelling of words of this type. The use of principles as practiced in group III "seems to guarantee that the ability to spell words of non-Latin origin will not be impaired."²

The chief conclusions from this study seem to be that the value under consideration is only in small part achieved with ordinary methods of approach in teaching Latin, and that if much progress is to be made in achieving it the avenue is not the indirect one of incidental results, but of direct efforts toward attaining it.

¹ Warren W. Coxe (76), p. 229.

² Ibid. p. 228.

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3. The two illustrative investigations already mentioned apply particularly to objectives 2 and 3 as listed. The third, a study by Kirby inquiring into the value of Latin as a preparation for French, is primarily pertinent to objective 4.¹ In this investigation measures of relationship — coefficients of correlation — were computed (1) between the numbers of units of Latin which students had had in high school and the marks assigned them at the end of the first and second semesters of university French, (2) between percentile rank on an intelligence test given to all freshmen in the university concerned and the same marks in French, and (3) between the percentile rank in intelligence and the number of years of Latin the students had had in high school. The coefficient of correlation between years of Latin and the first semester mark was 0.23 ± 0.04 , from which Kirby concludes "that a knowledge of the amount of Latin a student has had in high school would enable one to predict his success in first-semester French only slightly better than by chance."² The coefficient for second-semester marks is almost identical, being 0.25 ± 0.04 . The correlations between intelligence rank and the marks for the two semesters are higher, being, respectively, 0.43 ± 0.03 and 0.47 ± 0.03 , showing that intelligence rank has more to do with marks than does earlier Latin training. The coefficient of correlation between intelligence ranks and number of years of Latin is 0.10 ± 0.04 — so low as to be practically negligible. Finding that intelligence is an important factor of success in the course in French, and being desirous of ascertaining the influence of the number of years of Latin distinct from the factor of intelligence, Kirby resorted to the method of partial correlation by which the factor of intelligence might be kept constant. The coefficients thus resulting for years of Latin and first-semester and second-semester marks were identical, both being 0.22 ± 0.04 . He concludes that "this correlation

¹ Thomas J. Kirby (81).

² Ibid. p. 565.

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is so low as to indicate that the study of Latin by the methods used in the high schools from which these students came has only a slight relationship to the probable future success in first- and second-semester French in the university.”¹

As has been stated, these three studies, the findings of which have been summarized, are illustrative of a large number made for the Classical Investigation. They are illustrative not only with respect to the careful scientific methods which have been used in making them, but also with respect to the dominant inference to be drawn from them; namely, that *under the conditions of present-day teaching of Latin the values tested for — values which are expressed in the instrumental and application objectives listed — are much smaller than older assumptions might lead one to believe.*

To the argument that if these objectives were frankly accepted by teachers, and conscious systematic effort were made to achieve them, greater gains along these lines would be made, the critic might be disposed to answer that these formerly minor and incidental objectives of the subject would thereby be elevated to major positions, and that it would be preferable under such circumstances to establish good courses in appropriate subjects (for example, in English) in order to attain these values even more directly. Moreover, some of these values, especially those in objectives 2 and 3, are so important that they must be made major objectives in courses which should be included in the programs of *all* pupils. That is, they are properly parts of one's general training. Being so, they cannot be assigned as the special contribution of a subject which has long since ceased to be, and will never again be, a universal requirement for secondary-school pupils.

The formulation of aims of Latin given above includes but a single *disciplinary* objective, but withal a very broad one — “Development of correct mental habits.” The values claimed

¹ Kirby (81), p. 569.

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in former days, however, called for a much wider variety of transfer value, many of them having been absorbed in the instrumental and application objectives as quoted. In discussing this aim it is hardly necessary to do more than to refer again, as was done in dealing with the disciplinary values of mathematics, to the study by Thorndike quoted in Chapter XI. To the conclusions stated in discussing mathematics it is especially pertinent to add the one pointing out "that the languages have no claims to preëminence" in this regard.¹

The *cultural* objectives (6-10 above) are so wide in variety that it is impossible to discuss any one at length, even if dependable evidence were at hand in affirmation or denial of their feasibility. It should be possible to approve the sixth, "Development of an historical and cultural background," as a minor aim of the subject but not as a major one. All the backgrounds implied in the aim are not to be found within the small amount of Latin literature that is being studied or that can be studied. To achieve this as a major objective would require much collateral historical and other reading in English. This would in turn reduce the amount of Latin which could be read, thereby removing the content, which must, after all (if this subject is to be true to name), nourish its really acceptable major objectives. It is difficult to believe that such a value, as well as those represented in objectives 7 and 8, cannot more properly be achieved in courses in English and the social studies, in which they must undeniably be matters of major concern. The next objective, "Elementary knowledge of the simpler general principles of language structure," probably has some validity. The same may be said of the last objective, "Improvement in the literary quality of the pupil's written English," especially if it is seriously accepted as a responsibility by teachers of Latin. Evidence is at hand to deny emphatically that it is now being achieved. For example, Miller and Briggs, after a study of

¹ See Chapter XI, p. 371.

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written translations of Cicero in fifteen schools which they believed to be typical, go so far as to conclude "that the translations are likely to do far more harm than good to English."¹

Aims and values of modern foreign language. Aims of modern foreign language which have been concurred in by large proportions of two hundred teachers in this field are shown in Table XXXIX. The first five are clearly immediate

TABLE XXXIX. PERCENTAGES OF TWO HUNDRED TEACHERS CONCURRING IN CERTAIN AIMS OF MODERN FOREIGN LANGUAGE²

AIMS	PER CENT OF TEACHERS CONCURRING
1. Correct and ready pronunciation	98.5
2. Ability to speak and understand the spoken language . . .	88.0
3. Ability to translate the language with facility	89.5
4. Ability to read the language with facility without the inter- position of English	90.5
5. A ready, accurate, and fairly complete working knowledge of the grammar of the language	93.5
6. Knowledge of the history, manners, customs, and ideals of the country to which the language is native	80.5
7. A better understanding of the grammatical structure of the English language	70.4
8. Concurring in all the aims listed	54.0

aims requiring justification by qualifying in some significant way with respect to one or more of our criteria of aims and functions of secondary education. The sixth, "Knowledge of the history, manners, customs, and ideals of the country to which the language is native," and the last, "A better understanding of the grammatical structure of the English language," would have been classified by the advisory committee in charge of the Classical Investigation as "cultural" objectives. The last aim corresponds with the ninth objective in

¹ George R. Miller and Thomas H. Briggs (84), p. 762; see also William R. Price, H. G. Thompson, and E. B. Richards (85).

² Adapted from Koos (10), p. 40.

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the list for Latin quoted above. In fact (as those conversant with the claims made for foreign language know), with a few additions, the full list of objectives for Latin as quoted would, by close analogy, be almost as acceptable to the friends of French, German, or Spanish for their subjects. Additions to the list would pertain to a more frequent direct use in subsequent reading and conversation and in occupational values, as in science and business. Values in science are more often ascribed to French and German; the commercial values, to Spanish. Although this last value has some substantiation, especially in states near Spanish-speaking countries and occasionally elsewhere, the conviction grows that it has been greatly overestimated in most sections of the country.

A reconsideration of values in summary. Reviewing now the values of Latin and the modern languages by subjecting them to the criteria, first, of the *aims* of the secondary school, one may venture the statement that some relationships obtain. The civic-social-moral aim may to some extent be served through those of the objectives classified as cultural, which afford some understanding of the life of other peoples and other times. The recreational aim also may be in part achieved by these and other cultural objectives. For a small proportion of pupils studying the modern languages there may be a direct recreational reading use and, perhaps, for an occasional pupil, the use of spoken language in travel. These languages bear no obvious relationship to the health aim. For the occupational aim they have some meaning, for example, for a small number and proportion of pupils who may later enter commercial pursuits, and for another very small proportion who will use them as tools in advanced study and research. The languages have meaning also for those who will enter literary pursuits. Under the vocational aim it is also appropriate to classify temporarily, as was done for mathematics, the foreign language required for admission to higher institutions. Many estimable colleges and universities

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have in recent years reduced or entirely removed requirements in this field, thereby hastening the better adaptation of the high-school program to the more democratic purposes of that institution.

The *functions* of secondary education which may to some extent be served by the foreign languages are the recognition of individual differences, exploration and guidance, training in the fundamental processes, and transfer of training. The first is achieved only for pupils who can succeed in, and who care for, the languages, which is far from *all* pupils enrolled in the modern secondary school. Through contacts with early courses in the subjects pupils should be able to try out their interests and abilities, the better to determine the advisability or inadvisability of continuing in linguistic studies or of selecting linguistic pursuits. Training in the fundamental processes is advisable as far as the related "instrumental and application" objectives are achievable; an analogous assertion may be made touching transfer of training. For both these functions it is to be emphasized that if they are to be attained, they must be definitely aimed at.

This summary ought not to be concluded without a statement that the values for all pupils, or for any large proportion of them, are easily overestimated. As compared with most of the foregoing groups of subjects, generous and vital relationships with the aims and functions are much less readily demonstrable. The foreign languages seem not to comport nearly so well with the purposes of a modern and democratic secondary education as do the other families of academic subjects already reviewed. They will, however, continue to be made available to the secondary-school pupil, and every effort should be made to put them on as high a level of efficiency, with appropriate content and methods, as possible.

The programs in the foreign languages. Over a long period of years the content of the course in Latin in four-year high schools conformed rather generally to a standard pattern.

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"First-year Latin," following the "grammar-translation" method, endeavored to prepare for the second-year course, which on the reading side covered the first four books of Cæsar's "Commentaries," or, less frequently, material from the seven books equivalent in amount. The translation for the third year was usually restricted to six orations of Cicero, and for the fourth year the first six books of Virgil's *Æneid*. The last three years contained varying amounts of (1) grammar and syntax and (2) writing in Latin.

Because of a growing feeling of dissatisfaction both inside Latin-teaching circles and outside, stimulated no doubt by attempts to adapt the subject to a less selected high-school enrollment, there has been in recent years a distinct tendency to modify the translation content. The attack first centered on the materials of the second year, which seemed least appropriate to the level to which they were assigned. The desirability of change of content in this year is enhanced by the fact that for those who now pursue this subject the typical amount taken is two years. Modifications were various but often included the introduction of simpler and more acceptable content during at least the first half of the year. This change was accompanied by a tendency to shift these traditional readings upward in the course. The relief of pressure thus provided gave latitude for the recognition of the values in the non-translation objectives which have been summarized above. The recommendations in the General Report of the Classical Investigation are in harmony with these tendencies.¹ Although the materials traditional for the respective years are to be found in the recommended lists, the "Commentaries" are not named (except in simplified forms) before the fourth semester, and the numbers of different items in the lists from which the Latin content may be selected, if the recommendations of the report are accepted, are generous indeed.

¹ (73), chap. iv.

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No authoritative report or recommendations on modern foreign languages, other than those having to do with college entrance, have been made in years. The chaotic situation in this field has been added to by the sudden and almost total disappearance of German and the consequent sudden increased demands made on French and Spanish. Leadership offered by a constructive report is much needed. The usual amount of work in these languages has been reported in an earlier section. It is not uncommon to permit a pupil to begin the study of a modern language in any high-school year, especially where (as is increasingly general) credit is granted toward graduation for a single unit.

Foreign language in the junior high school. Marshall has reported certain aspects of the status of foreign language in junior high schools in thirty-three cities of more than one hundred thousand population. The frequency with which the different languages were represented in the offering for Grade IX was as follows: Latin, 33; French, 24; Spanish, 18; German, 5; Italian, 2. The numbers of cities in which these languages are offered *below* Grade IX were 26 for Latin, 21 for French, 17 for Spanish, 5 for German, and 2 for Italian. Comparison of these figures brings the conclusion that the languages offered in Grade IX are usually offered also below this grade. The sections of each grade in which instruction in these foreign languages available below the ninth grade is begun are shown in Table XL. From the table "it appears that twelve cities begin Latin in Grade VII, while eleven offer it first in Grade VIII. In ten cities French is begun in Grade VII and ten others begin it in Grade VIII. Eight cities offer Spanish first in the seventh grade, and eight others begin it in the eighth. One city begins Italian in the seventh grade and one in the eighth, while four cities offer German in the eighth grade."¹ Thus a large proportion of schools offer work in this field below the conventional grade for doing so.

¹ H. C. Marshall (83), p. 211.

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TABLE XL. THE SECTION OF EACH GRADE BELOW GRADE IX IN WHICH
FOREIGN-LANGUAGE INSTRUCTION IS STARTED IN THE THIRTY-THREE
CITIES REPORTING ¹

LANGUAGE	VII-B	VII-A	VIII-B	VIII-A
Latin	9	3	8	3
French	8	2	7	3
Spanish	6	2	5	3
Italian	1	0	1	0
German	0	0	2	2
<i>Total</i>	24	7	23	11

We have had relatively little experience in handling foreign language in grades below the high school, and therefore there is little agreement as to what should be introduced as content or what should be followed as method. The most common practice is to endeavor to adapt to junior-high-school purposes what was formerly done in high-school grades. For example, in Latin, the instructor frequently tries to cover in the first two junior-high-school grades the kind and amount of content ordinarily comprehended by the ninth-grade course, and this by the familiar grammar-translation method. This is admittedly so inappropriate for children of these grades that there has been some experimentation with novel procedures. A method that has sometimes been used is the resort to translation without emphasis on the terminologies of formal grammar. In this method the verb forms and endings and the declension endings of nouns, for example, are given translations, rather than being designated by their usual names. The materials translated are those from the usual high-school course. Another method is that which was developed in the junior high schools of Rochester, New York, which emphasizes at the start the English and the social values, introducing the pupil more gradually to the grammar

¹ Ibid. p. 211, Table II.

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of Latin. The earlier introduction of modern languages into grades below the ninth is facilitated by the possibility of using at first an informal conversational method, by which a reading knowledge can be attained without strict adherence to the grammar-translation method. Some schools have introduced in earlier junior-high-school grades a course sometimes called "general language," which, instead of aiming at a knowledge of some foreign language as such, is planned to affect knowledge and ability in English. It stresses the relationships of other languages to English.

QUESTIONS AND PROBLEMS

1. Why was English so late in receiving recognition in the secondary-school program?

2. Compare Figs. 54 and 55 directly to note similarities and differences in the aims of the two major phases of English.

3. Give instances of the overmaturity of selections used for study and reading in high-school classes in English.

4. Examine several selections used for study in high-school classes in English with a view to noting specific civic-social-moral values they can help to achieve.

5. Examine a high-school textbook in modern history for illustrations of content significant in achieving the civic-social-moral aim and other aims in secondary education.

6. In what sense may the investigations by Bassett and by Rugg and Schweppe dealt with in this chapter be thought of as functional, or activity, analysis?

7. Judging from reports of committees on the social studies and other content of the section dealing with this field, is the trend likely to be toward or away from composite courses?

8. Analyze some recently published textbook in general science, computing the proportions devoted to each of the several sciences. Does the purpose in writing it appear to have been to give separate recognition to each of the subjects into which the whole subject of science has been divided?

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9. What objections, if any, are raised to the courses in general science and general biology, and what may be said in corroboration or refutation of the objections?

10. Make a study of the amount of science taken in some high school by the members of a recent graduating class.

11. Prepare a partial list of the types of material that should be emphasized in first-year high-school courses in mathematics if content values are regarded as more important than disciplinary values.

12. Discuss the relative merits of the plans for the organization of mathematics in junior high schools and senior high schools quoted from the Report of the National Committee on Mathematical Requirements.

13. Would acceptance of the proposals of this committee bring us nearer practices in German and French secondary schools or lead us away from them?

14. What obstacles may stand in the way of presenting in Grades VII, VIII, and IX, in schools operating on the 8-4 plan, the outline of content in mathematics proposed for junior-high-school grades by the Committee on Mathematical Requirements?

15. Discuss the relative values of English and Latin in achieving objectives 2, 3, and 10, and of the social studies and Latin in achieving objectives 6 and 7, in the list quoted from the report of the Classical Investigation.

16. Compare the aims and values of Latin with those of a modern foreign language such as French.

17. What relationship should exist between the chief aims and values kept in mind for a modern foreign language and the methods of teaching followed?

18. What is to be said for and against the requirement of foreign language for graduation from high school?

19. From the point of view of the special purposes of the junior high school, as these were outlined in Chapter VII, which group of subjects should receive first recognition in a junior high school (if offerings cannot be made in both fields), foreign language or the practical arts?

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XIII

THE SECONDARY-SCHOOL OFFERING: THE SPECIAL SUBJECTS¹

I. THE MANUAL ARTS

Development and present status. The introduction of manual training into the high school — at first on vocational grounds — in the eighties was referred to in dealing with vocational education in Chapter IX. Stout shows for the groups of North-Central schools represented in his study that it began to find a place in a few schools in the period 1886–1890.² By the period 1906–1911 it was offered in well over half his sample of schools, and by 1915–1918 the proportion had mounted to more than three fourths. In the last period the offering in this field also sometimes included mechanical drawing, pattern-making, machine shop, forging, and printing.³ About 10 per cent of the public high-school enrollment of the entire country was enrolled in such courses, not including mechanical drawing, in 1921–1922.⁴ The expansion in the offering in this field in the high schools of a single state, Minnesota, beginning in 1894, has been reported by Smith. The percentage of different schools on the high-school list having industrial departments at the opening of the period

¹ The designation of the subjects dealt with in this chapter as "special" implies nothing more than that for convenience a conventional classification is being followed. As may be judged from the treatment accorded them, there is no intent to set them aside as less important than "academic" subjects. Perhaps the chief explanation for current application of the term "special" is that the subjects are the more recent additions to the high-school offering.

² (XII) (16), p. 74.

³ *Ibid.* p. 221.

⁴ *United States Bureau of Education Bulletin No. 7* (1924), pp. 46–47.

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studied was 5.0. At points for the most part at intervals of five years the percentages were as follows: 1900, 6.1; 1905, 9.7; 1910, 52.1; 1915, 86.8; 1920, 76.2; 1923, 70.9. The spurt at 1910 was stimulated by a special state subsidy, and the decline in the later years was owing to endeavors to economize in small communities during the financial stress of this period. Smith has reported also the different subjects offered in these departments, the numbers at the same year-points already mentioned being reported in Table XLI. The rapid expansion to include more "experiences" is shown by the interesting downward drift of frequencies at each year-point for which data are reported.

The grades from the seventh upward for which this industrial work was scheduled in these schools in 1922 were as follows: seventh, in 161 schools; eighth, 162; ninth, 171;

TABLE XLI. FREQUENCY OF APPEARANCE OF INDUSTRIAL SUBJECTS IN THE OFFERINGS OF HIGH SCHOOLS OF MINNESOTA FROM 1894 TO 1923¹

SUBJECTS	1894 (80) ²	1900 (115)	1905 (174)	1910 (207)	1915 (221)	1920 (240)	1923 (248)
Bench woodwork	4	7	17	108	192	183	177
Mechanical drawing . .	3	6	16	102	180	172	177
Forging	—	5	10	16	25	17	18
Wood-turning	—	—	1	9	11	24	20
Machine-shop practice .	—	—	1	4	8	13	14
Carpentry	—	—	1	3	12	10	12
Automobile mechanics .	—	—	1	—	3	10	17
Cement etc.	—	—	—	1	3	2	5
Architectural drawing .	—	—	—	2	4	21	30
Foundry work	—	—	—	—	3	3	4
Pattern-making (wood) .	—	—	—	—	4	5	6
Sheet-metal work	—	—	—	—	1	3	9
Printing	—	—	—	—	1	8	14
Mill work (wood). . . .	—	—	—	—	—	3	4
Electricity	—	—	—	—	—	4	12
Machine design	—	—	—	—	—	5	6
Home mechanics	—	—	—	—	—	2	5

¹ Adapted from Homer J. Smith (7), p. 8, Fig. 1.

² Numbers of schools on high-school list.

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tenth, 165; eleventh, 58; twelfth, 29. The conclusion is that the work is scheduled chiefly for the seventh to tenth grades, inclusive, and much less frequently for grades above these.

Aims and values of manual arts. Recent investigations show that there has been a remarkable shift from the vocational objective as the dominant one in this field of instruction. The writer has reported elsewhere that only twenty-two of one hundred teachers of manual training signified on inquiry that the paramount aim of the work offered is vocational. Even of this small number ten made this acknowledgment equivocally by adding such qualifications as "we are going in that direction," "as far as possible," "both vocational and general," etc. The numbers of these teachers concurring in other aims were as follows: (1) prevocational, 52; (2) to develop habits of skill and industry, 98; (3) to cultivate appreciation for beauty in design and articles of artistic value, 75; (4) to emphasize the informational side of the work, 76; (5) to cultivate social appreciation (interest in human activities), 57.¹

The most comprehensive recent canvass of the aims in this field is one by Smith,² who drew his list from literature dealing with the subject and then submitted it to one hundred and ten industrial teachers and sixty-nine school heads for their opinions as to which of the nineteen objectives found were being achieved in their departments. Effort was made to obtain opinions based on a department as a whole, rather than on any single course within it. A summary of these opinions is provided in Fig. 60, the length of the bar representing the number in a total of two hundred and twenty opinions acknowledging each objective. To obtain equivalent recognition of the opinions of industrial teachers and school heads in the figure, the numbers of the latter acknowledging each aim were weighted so as to bring them up to what they would be if there had been one hundred and ten of them instead of sixty-

¹ (XII) (10), p. 125.

² Smith (7), pp. 116-126.

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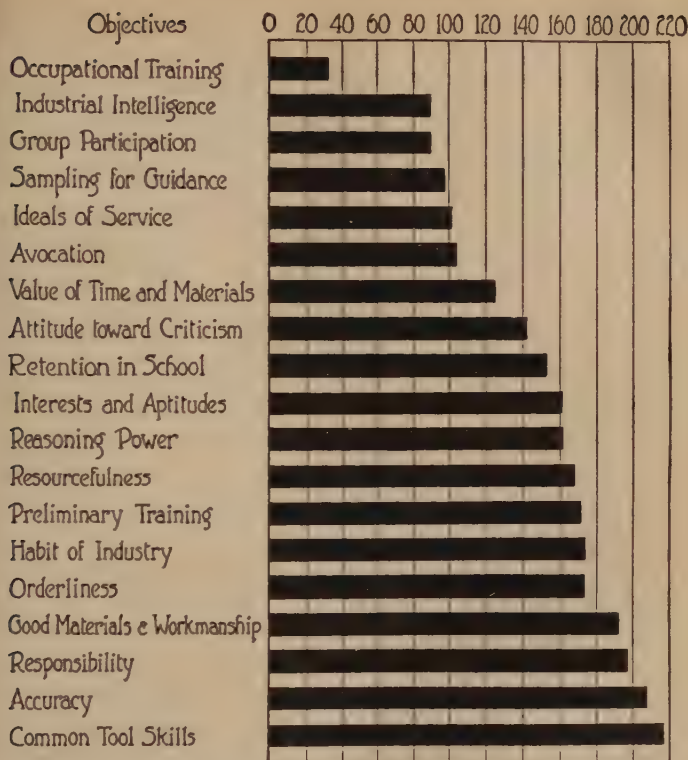


FIG. 60. Frequency of recognition of objectives believed by industrial teachers and school heads to be attained by industrial-course work.
(From Smith (7), p. 124)

nine, assuming that the objectives had been acknowledged in the same proportions as by the original number. In this way the influence of the two groups is equalized.

The objectives are listed in the figure in the order of the frequency of their acknowledgment, from the least to the greatest. In harmony with the present writer's study of aims of manual training as just reported, the *occupational aim is not often recognized*.

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In Smith's preliminary treatment of his materials (not quoted here) he classified nine of these objectives as having to do with *personal* traits, these being habits of industry, responsibility for a task, resourcefulness, ideals of service, effective group participation, orderliness, accuracy, sense of the value of time and materials, and proper attitude toward criticism. It is doing no violence to these concepts to say that most of them, if not all, would classify as *disciplinary* aims. To these, as thus classified, might well be added the objective designated as "reasoning power." It is significant to note that six of this total of ten objectives related to transfer values are to be found in the lower half of the figure in which the objectives most frequently recognized are to be found. Thus, for this subject, first advocated on vocational grounds, the possibilities of transfer are highly valued, as has been shown to be true for the older subjects dealt with in the foregoing chapter.

The full statements of the other aims listed in abbreviated form in the figure are "information and experience that assure a broader view of the industrial world," "social adaptiveness," "sampling of industrial occupations," "worth-while use of leisure time," "keeping boys in school longer," [discovery of] "special interests and aptitudes, general guidance," "general preliminary training" [for industrial occupations], "appreciation of good materials and workmanship, useful at times of purchase," and "skill in the use of common tools. The objective last named, clearly an immediate aim, is more often recognized than any other aim on the list.

After a careful consideration of their probable validity and interrelationships, the author of the report being quoted simmers the objectives of industrial work down to six, as follows: (1) to develop skill in the use of common tools (2) to afford industrial information and social intelligence (3) to foster appreciation of good materials and workmanship, (4) to further intelligent choices of life occupations

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- (5) to inculcate worthy personal traits and attitudes, and
- (6) to provide a measure of specific occupational training.

When reviewed from the standpoint of the likelihood of their contributing to the achievement of the aims and functions of the secondary school, this group of subjects and their objectives may be seen to afford much of value. To the extent that they contribute to industrial and social intelligence and to the inculcation of several of the characteristics referred to above as disciplinary values, they will assist in achieving the civic-social-moral aim. While considering manual arts in relation to this aim, one wonders that the objectives as listed did not include reference to desirable coöperation with home and family; for example, by the making of furniture to add to its comforts, and, even more, by equipping the boy with the abilities necessary in making ordinary household repairs. Some of the objectives — for example, skill in the use of common tools and appreciation of good materials and workmanship — will in some measure serve the recreational and æsthetic needs of boys and men. The occupational aim will be occasionally but not generally served.

Important relationships of this work with two of the functions of secondary education should be obvious. These functions are the recognition of individual differences, and exploration and guidance; achievement of these will assist in democratizing secondary education. In part because of the vocational relationships of the materials, the courses appeal to the interests of adolescent boys who, on account of approaching maturity, must soon enter occupational life. The same thing must be said of the transfer values in this field as for the more academic subjects: if these values are to be achieved, they must become goals consciously aimed at by teachers and pupils. In this connection it may be pointed out that Thorndike's investigation referred to in Chapter XI showed courses in shop to be practically on a

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par in "mental discipline," as there measured, with history, music, Spanish, English, drawing, and business.¹

The content in manual-training courses. The nature of the content of courses in bench woodwork (much the most frequent form of manual training to be offered) may be illustrated by drawing on parts of the lists of "jobs" found to be common to a half or more of the schools in Minnesota visited by Smith. These were (1) jobs for the pupils themselves and their homes, such as chairs, tables, cedar chests, bookracks, pedestals, desks, morris chairs, piano benches, costumers, tea carts, davenport, porch swings, sewing cabinets, taborets, radio cabinets, canoes, toboggans, etc. ; (2) jobs for the school shop, such as tool boards and cabinets, bench fixtures, lumber racks, lockers, drawing boards, vise blocks and handles, etc. ; (3) jobs for the school system in general, such as bulletin boards, magazine racks, athletic and playground equipment, stage scenery, bicycle racks, kindergarten equipment, repair and refinish of chairs and desks, floor repairs, etc. ; (4) community service, such as auditorium equipment, park benches, etc. ; (5) jobs for the farm, such as hayrack, wagon box, shipping crate, gate, etc.²

A study has been made which indicates that if training for *home repair* is to be one of the objectives of the courses in manual arts, certain processes not ordinarily introduced into such courses will need to be added, among them filing, scribbling, stapling, mixing paint, puttying holes, applying paint, removing paint, cutting glass, applying putty (in glazing), removing old wall paper, and tinkering. In his conclusions from the study the investigator did not contend that the actual equivalents of home-repair jobs be introduced, but that the processes represented should at least be included in the projects of which the full course is constituted.³

A type of emphasis recently urged in many quarters and called for by the objectives of the manual arts as these have

¹ Page 369.

² Smith (7), pp. 60-61.

³ Logan R. Fuller (4).

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been presented, especially those pertaining to industrial and social intelligence and the furthering of intelligent choices of life occupations, is that which introduces *information* into the courses. Heretofore the work in manual training has adhered too strictly to the task of imparting manipulative skills, thus leaving untouched a field of great opportunity. Much can be done and should be done toward giving the pupils information as to the sources, manufacture, and uses of materials of construction used in the shop and elsewhere; the principles of operation of common devices, especially those associated in any way with industrial occupations; and industrial-social problems such as industrial accidents, occupational diseases, labor organization, child labor, and factory inspection.¹ One of the largest opportunities of this department is that of giving information concerning the industrial occupations for the purpose of such guidance as was suggested in the foregoing chapter in the description of the course in vocational civics. This information should bear on the range and groups of industrial occupations, the training and other special qualifications required for success, and the opportunities for employment, wages, social service rendered, and the like. The methods used for imparting this information are lectures by instructors and others, readings, discussion, and visits to industries.

Reference to the desirability of adapting the courses in manual arts to the purposes of guidance and to the development of industrial intelligence suggests a movement which has gained some ground in recent years, namely, that of administering courses in shorter units and of providing contact with, or "experiences" in, several industries. This is a decided break with the older practice of affording experience through two or even more years in bench work in wood only or, at most, this type with some work in mechanical drawing. In line with this development a bulletin issued by the State

¹ For a longer list see Smith (7), pp. 88-91.

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Department of Education in Minnesota suggests the provision in small schools of contacts, in the seventh and eighth and high-school grades, with at least five such fields, for instance, woodwork, drawing, metal work, electricity, and printing. Larger schools may add to these sheet metal, machine shop, cabinetmaking, automobile work, and architectural drawing. It is pertinent to note that in this state the departments in which manual arts are taught are officially designated as departments of "general industrial training."

Manual arts in the junior high school. The distinctive service renderable by courses in industrial arts in the junior high school is suggested in a study reported by Edgerton, who ascertained the "main reason given for offering industrial activities and related studies" in more than three hundred intermediate and junior high schools. These reasons, with their frequencies, were (1) contributing to the general experience, all-round development, and industrial intelligence, 118 schools; (2) aiding in the intelligent selection of industrial occupations without encouraging early choices, 101; (3) enriching the school experience of the pupils through concrete situations, 78; and (4) preparing for entrance into industrial vocations, 6.¹ Acceptance of a weighting of objectives in the proportionate recognition here reported makes preparation for specific occupation in industrial arts even less important in the junior high school than was reported for the high school in Smith's study quoted above. This is in accordance with the distinctive purposes of the junior high school in the educational system. Similarly harmonious with these purposes are the other reasons, more frequently recognized, especially the first two as named.

With this emphasis on the purposes of the work it is only logical that, even in this early stage of development of the junior high school, there should be considerable adaptation of the offering to fulfill them. This is shown in the number of

¹ A. H. Edgerton (2), p. 16.

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different industrial "activities" reported by Edgerton as being carried on in these schools. In the great majority of schools the number ranges from three such activities to ten. Among the activities listed are courses in printing, carpentry, cabinet-making and furniture-making, wood-finishing, pattern-making, foundry, forging, machine shop, sheet metal, concrete, photography, electricity, plumbing and pipe-fitting, operating and repairing automobiles, drafting, and the like. Schools in smaller communities often give less than three of these, but Edgerton found schools at the other extreme listing as many as sixteen.¹

An interesting example of the effort to adapt the industrial offering of the junior high school to the special service renderable by this institution is that reported for St. Cloud, Minnesota. According to this plan all boys take, as a required course for one hour daily throughout the seventh grade, a year of work divided into six six-week units bearing the following names: "exploratory mechanical and architectural drawing course," "exploratory woodwork course," "exploratory electricity course," "exploratory automotive course," "exploratory printing course," and "exploratory machine-shop and general metal-work course." Each unit in the course is composed of typical problems, or "jobs," representative of the industry but adapted to the ability of boys of this maturity, a study of occupations to be found in that industry and of other related technical and social information, and art correlation, for the last named of which one period per week is set aside. This course is followed by six elective courses, each a half year in length, in the same fields, but more intensive than the briefer units.² The assumption is that after the contacts in these exploratory units the boys can select more discriminatingly from the more intensive courses.

¹ Ibid. pp. 17-18.

² John F. Friese and Others (3). See also John F. Friese's "Exploring the Manual Arts" (The Century Co., 1926).

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II. HOME ECONOMICS

Development and present status. Of twenty schools representing the period 1860–1865 in Stout's study of the development of high-school curricula in the North-Central states, two listed "domestic science." No statement is made as to what was comprehended by these courses. The name appeared again in the list of subjects for one only of forty schools representing the period 1896–1900, but it did not appear even once in all the subject lists used in this investigation representing the six half-decade periods into which the intervening years from 1865 to 1896 were divided.¹ After the opening of the present century this field made rapid gains. In forty schools representing the period 1906–1911 the three following names appeared: "domestic science" in 40 per cent, "domestic economy" in $2\frac{1}{2}$ per cent, and "domestic art" in $12\frac{1}{2}$ per cent. By the period 1915–1918 these percentages had increased, respectively, to 75, 15, and $17\frac{1}{2}$, and two additional titles in this field had emerged: "household chemistry" in $12\frac{1}{2}$ per cent of the schools represented, and "household management" in $7\frac{1}{2}$ per cent.² The fact that by 1921–1922 the enrollment of girls in this work in the United States made up more than a fourth of all girls enrolled in public high schools was reported in Chapter IX.

The amounts of work offered in this field vary widely, as may be seen in the number of different years of work made available in a group of 63 North Central high schools (four-year institutions) in 1915–1916. The numbers of years of work ranged from one to eight. The most frequent amounts were one year, two years, and four years, these being represented in this group by 10, 19, and 11 schools respectively.³

It is not a frequent practice to require girls in other than junior-high-school grades to take work in home economics.

¹ (XII) (16), p. 74.

² Ibid. p. 221.

³ (XII) (10), p. 128.

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This is shown in a study reported by Miss Bowman, in which it was found that in a total of 197 representative schools, only 36, or less than 19 per cent, made it a requirement. The most common practice in the high schools setting up a prescription in home economics is to require only a single unit.¹

Aims and values of home economics. In Chapter IX it was reported that there are leaders in the field of home economics who prefer to regard the usual high-school work in this

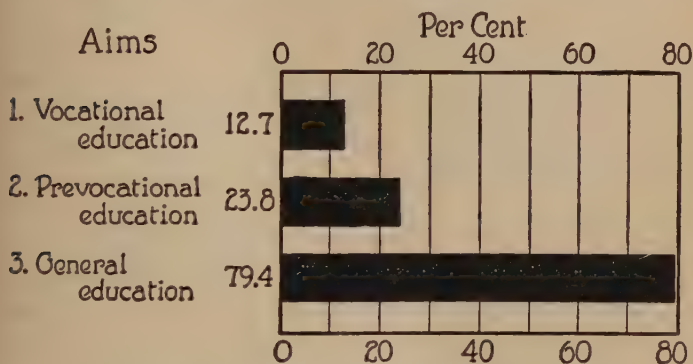


FIG. 61. Percentages of fifty-eight teachers of home economics concurring in three major aims. (Adapted from Koos's "The Administration of Secondary-School Units," p. 138, Table XCII)

subject as general training rather than as vocational training. This view is reflected in the extent of concurrence of a number of teachers of home economics in what were submitted to them as three possible major aims for the subject as taught in their high schools (Fig. 61). These aims were vocational education, prevocational education (that is, to assist the pupil in finding a vocation), and general education. A small number of teachers accepted two of the aims, but most of them only one. Only about an eighth of the group accepted

¹ Leona F. Bowman (9), p. 65.

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the vocational aim; almost a fourth, the exploratory aim; about four fifths, the aim of general education, either alone or in combination with the exploratory aim. The teachers of home economics are here seen to lean most emphatically toward the acceptance of the general aim.

In view of the important and obvious relationships of the subject to efficiency in the occupation of home-making, this attitude of teachers of home economics is a bit perplexing to one who first encounters it. Unless he makes himself more conversant with the point of view of these teachers he may conclude that this is just another group of specialists losing sight of major values in the field. The truth is that this partly paradoxical attitude is explained by the desire of these specialists to make the subject more broadly functional. In the first place, they distinguish between "general" and "intensive" home economics, the former "appropriate to all girls as actual members of families with present home duties and relationships as future home makers," and the latter "appropriate for those girls and women who desire to prepare specifically for specialized vocations based on some aspects of home economics or who desire to prepare specifically for household management as an occupation either in their own homes or in homes of others."¹ This usage appears to be an endeavor to distinguish the functions of the subject into the broadly occupational and the more specifically occupational. That general home economics is conceived of as having important occupational bearings may be judged from the statement that "well-planned and well-conducted general home-economics courses ought to offer a basis for the vocational efficiency of girls as home makers or in vocations growing out of home economics."² The applicability of "general education" as the goal is seen again in the wide scope of purpose and aim set up for what has just been referred to as "general home economics":³

¹ (16), p. 1.

² Ibid. p. 2.

³ Ibid. p. 4.

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... The purpose of general home-economics education is to help to secure and to maintain the best type of home and of family life as vital forces in American society. . . .

The aims of general home economics in the elementary and high schools should be:

First: To prepare the pupils for helpful and worthy membership in their present homes by establishing such standards of character as will result in consideration of the comfort and convenience of others and in willing service for the common good. To accomplish this aim, it is necessary to develop skill in the use of household materials, utensils, and machinery; to inculcate such personal habits and standards as to foods, clothing, and surroundings as will insure good physical health; to train in thrift, economy, and business methods that the pupil may appreciate the problems confronting the administrator of the family income; to apply to daily life the fundamental laws of beauty of color, line, and form.

Second: To give prevocational training to such girls as may discover within themselves special ability for those occupations and industries that have evolved from the household crafts.

The specific aims of the two phases into which the field is sometimes divided for purposes of discussion or teaching — that is, home economics and household art, as these aims are emphasized by teachers — have been listed elsewhere¹ by the present writer. Almost all the teachers there quoted reported that they were either "emphasizing" or "giving most emphasis" to the following aims of *home economics*: (1) to develop skill in performing household activities; (2) to give information concerning home industries and concerning materials; (3) to teach principles of economy in terms of cost and expenditure of energy; (4) to create interest in home-making, (5) to develop a scientific attitude toward household activities; (6) to create a desire to improve the living conditions of the family or of the community; (7) to show the relation of civic and economic problems to the home.

¹ (XII) (10), pp. 138-140.

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Similarly, almost all these teachers indicated that they were either "emphasizing" or "giving most emphasis" to the following specific aims of *household art*: (1) to emphasize the informational side of the work, (2) to develop appreciation of beauty in material and construction, and (3) to develop habits of skill and industry.

It is not to be expected that any large group of advocates of any subject in the curriculum could be found who would universally refrain from claiming *disciplinary values* for that subject. Although these do not loom large in the formulations so far cited for home economics, the literature in the field is not devoid of emphasis on this claim. In an analysis of the literature reported in "Home Economics in American Schools,"¹ one group of aims frequently found represented were "vaguely stated intangible outcomes," such as "independence," "intellectual power," "initiative," "broad view of life," "self-reliance," "high sense of honesty," combined with statements relating to scientific and appreciational attitudes. The three other groups in which the aims were distributed related to more specific outcomes in technique and habit-formation, to information in this field, and to the formation of critical judgments toward home problems. It is probably correct to assume that transfer values will in some measure accrue from home economics, as from other subjects, especially if these values become a goal toward which teacher and pupil consciously direct their activity. We have already seen that under present conditions relatively little is being achieved along this line.²

The subject has inspiring possibilities. Could we at once achieve the aims, general and specific, of home economics as these have been set forth above, we should go far in attaining many of the aims of the secondary school and thereby contribute generously to the enhancement of life in many

¹ Mabel B. Trilling and Others (18), chap. v.

² Page 369.

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relationships. There would be large contributions along civic-social-moral lines, not only through an improved home life, but in many respects in which the community at large would be concerned. There would be influences for the elevation of standards of recreation and of æsthetic appreciations. There would be a tendency toward a better state of individual and community health. The subject, both in its general and intensive forms, would have a notable bearing on the occupational life of women. Furthermore, several of the functions of the secondary school would be served, among them guidance, the recognition of individual differences, the democratization of education on this level, the recognition of the nature of girls at a time when home-making interests are waxing to maturity, and even transfer of training. But this subject, in common with all others, will need to undergo much improvement in content and in methods of presentation before it will contribute all that is inherent in it toward complete education of youth in our schools.

The secondary-school program in home economics. The offering in this field proposed by the Committee on Home Economics working with the Commission on the Reorganization of Secondary Education comprehends (1) general courses "to be required of all girls throughout the junior-high-school cycle and to be made elective for all in the senior high school" and (2) intensive courses for girls over fourteen years of age who are likely to drop out early, for employed young girls, and for actual home-keepers and house workers.¹ The work outlined for the six years (omitting quotation of specific content listed) is as follows:²

Seventh Grade

First quarter: The care of clothing; thrift in selection and making. Second and third quarters: Meal preparation and service. Fourth quarter: Choice and making of simple clothing.

¹ (16), p. 2.

² Ibid. pp. 13-22.

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Eighth Grade

First and second quarters: Food preservation; marketing; food study; food accounts.

Third quarter: Economy in the use of clothing; study of costs.

Fourth quarter: (1) Summer clothing — its use and care; (2) garments for infants, home nursing and care of little children during summer.

Ninth Grade (survey course)

First quarter: Clothing studies in relation to healthful and economic living.

Second quarter: Food studies in relation to healthful and economic living.

Third quarter: The home and its care. Studies dealing with making the living place a healthful, attractive home wherever it may be.

Fourth quarter: Family and personal finances. Wise and thoughtful spending and saving.

Tenth Grade

First semester: Feeding the family in health.

Second semester: Clothing the family.

Eleventh Grade

Topic for the year: The home and its upkeep.

First quarter: House construction.

Second quarter: Household decoration and furnishing.

Third quarter: Household sanitation.

Fourth quarter: State and municipal laws affecting the home.

Twelfth Grade

Topic for the year: The administration of the home and care of children.

First quarter: Home administration.

Second and third quarters: Child welfare.

Fourth quarter: The social home.

A few comments on this proposed program may be ventured. The requirement of home economics in large amounts throughout the three-year junior-high-school period is sometimes demurred against, and relatively few schools have acquiesced in it in practice, although many require one or two

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years. The rather close adherence to clothing and food, to the partial exclusion of other significant phases of all that constitutes home-making, especially during the first four years of the program, has sometimes come in for unfavorable criticism. It may be questioned whether content thus restricted would make for attainment of all the values ascribed to the subject as these have been reviewed.

Some notion of the content and organization of high-school courses in home economics may be gained from the following quotation from the report of a recent survey of practices in a large number of representative schools:¹

A wide range of home-economics subjects has been organized in high schools offering a four-year course in home economics. These are: sewing; textiles; house management; costume design; house planning; millinery, related art; laundry; remodeling, dyeing, and dry cleaning; tailoring; household accounting; economics of the home; cooking; housewifery; child care; dietetics; hygiene and home nursing; invalid care and feeding; advanced cooking and table service; lunch cooking; bacteriology; sanitation; cafeteria supervision; household physics. No one high school considered... offers all of these courses. In some of the larger high schools, many of the subjects mentioned are taught as separate divisions of home economics, but in the majority of the high schools the different subjects are grouped under general headings. To illustrate: textiles as such is taught in 16 of the 197 high schools reporting. In the remaining schools textiles is taught in connection with sewing. Similarly, home management or dietetics or child care, or all three, may be taught in connection with a study of food and be classed as "cooking."

There has been some recent discussion of the desirability of offering courses in home economics adapted to the needs of boys. An instance of such a course is one listed for the senior high schools of Denver; it is called "applied economics for boys." The suggested division of time dur-

¹ Bowman (9), pp. 65-66.

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ing the semester over which the course extends is food nine weeks; clothing, two weeks; the household, seven weeks; social relationships, one week.¹ In 1925-1926 the Tulsa, Oklahoma, High School instituted a course in "home crafts" to be required of all boys in the eleventh grade. From two to three sixty-minute lessons per week are given in combination with physical education. The units of which this course is constituted are nutrition, food preparation, duties of host, child care, textiles and clothing, interior decoration, budgets, efficient management of the home, home appreciation, and community interests.

Home economics in junior-high-school grades. Although in many school systems home economics has been taught in the seventh and eighth grades — and even in grades below — for a long period of years, the typical amount of time assigned to it weekly has been relatively small. In the upper elementary grades of the conventional elementary school the work has seldom been allotted more than eighty or ninety minutes. This small amount of time has encouraged restriction of the content of home economics in the seventh and eighth grades to sewing and cooking. As with other subjects of study, the too frequent practice has been to carry over to the junior high school the content typical of the older school. In visiting the new units one encounters many in which, although more time is allotted to the subject, the sole emphasis is still on these two phases only. Fortunately, there is also a marked tendency to include other phases in the offering, even in the seventh and eighth grades. This is sometimes accomplished even where the courses still bear the names "sewing" and "cooking," the topics finding place here being similar to those reported by Miss Bowmar for the high school.

It seems appropriate to inquire at this point whether even the best modifications so far made are sufficiently in harmony

¹ (13), pp. 127-139.

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with all the distinctive services which the junior high school should be called on to render. One specialist in the field of home economics who has realized the need along one important undeveloped line, has written in part as follows:¹

Another outstanding objective recognized by all leaders in junior-high-school education is that of providing prevocational opportunities. In order that vocational efficiency may be developed through later training, it is advocated that many diversified opportunities in the junior high school will provide a means for children intelligently to select the kind of work for which their abilities and inclinations have shown them to be best adapted. Many such opportunities are provided for boys. . . . In nearly all schools home economics, in its several phases, is the only prevocational subject offered to girls. Even where the school furnishes adequate space, and equipment which approaches real home conditions, and instruction and practice are given in all phases of home making activities . . . it is fair to ask whether or not this prevocational objective is fully attainable. When, as sometimes happens, the activities for girls stop in cookery or the clothing laboratory, this objective is certainly not attained. There is need for progress here.

The suggestion may be ventured that to render this important service for girls the home economics in junior-high-school grades should have an organization somewhat analogous to that being worked out in the industrial arts for boys in the same grades, as described in dealing with manual arts above. Would it not be appropriate for girls during their first secondary-school course in home economics to get some conception of the great scope of the field both in its many relations with the home and with vocational opportunities outside the home, rather than to make contact with only a single narrow phase of the subject, such as sewing or cooking? Should not exploratory possibilities of the subject be more largely

¹ Frances Zuill (19), p. 111.

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utilized by introducing a wider variety of activities and information more nearly representative of home and industry? If it should be objected that girls in the seventh and eighth grades are too young for such an approach, it may be answered that this is less true for girls with respect to home and related activities than is the organization of industrial arts for boys, as recommended for them and now often taught to them. Few boys have had the contact with industrial opportunities that girls have had with the home. Such a course might well be required of all girls. If at least an hour a day throughout the year could be spared for it, it might be compassed in the seventh grade; but if less time were available, it would be found necessary to extend it over two years. Subsequent courses would then deal more intensively with special divisions of the whole field, as is now done. Elections from subsequent courses could be more intelligently made after girls had had such a course.

It is to be noted that this proposal for junior-high-school grades is not far from the reverse of that made by the Committee on Home Economics of the Commission on the Reorganization of Secondary Education as the latter has been outlined above. The "survey course," which may be understood to have something in common with the exploratory course just suggested for the lower junior-high-school grades (in that it will assist in giving a comprehensive view of the field), is there listed for the ninth grade, emphasis on special phases coming earlier. Perhaps the committee was influenced by the need of adapting its recommendations to both six-year and four-year secondary-school periods, the four-year high school still being predominant at the time of making the report. For girls in the first year of four-year high schools who have not yet made contact with the subject, such a survey course has much to recommend it, but in junior-high-school reorganization the survey approach is more suited to the seventh or the eighth than to the ninth grade.

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III. AGRICULTURE

Development and present status of agriculture in public high schools. Partial treatment having been accorded agriculture in Chapter VIII while dealing with rural secondary education and again in Chapter IX during a consideration of the types of vocational education of secondary-school grade, the discussion of the subject at this point will be brief.

Some notion of the development of agriculture as a subject of instruction in public high schools prior to and including the year 1915-1916 can be gained from data presented by specialists in the Bureau of Education in the Report of the Commissioner of Education for that year.¹ The number of public high schools at that time reported as teaching agriculture was 2175. This is a number equal to more than a sixth of the 12,003 high schools reporting to the bureau in that year concerning enrollment.² Of this number 19 had established the work before 1901; 33, between 1901 and 1905; 413, between 1906 and 1910; and 1710, or almost four fifths, had first introduced it between 1910 and 1915-1916. In approximately three fourths agriculture was being taught as an "informational" subject, according to the indications they gave, and approximately one fourth as a "vocational" subject. From data gathered by the writer from high schools in the North-Central states for the same year, one may infer that in large part, even if not universally, schools stressing the first aim offered only a course in general agriculture, whereas schools stressing the vocational aim offered specialized courses, such as farm crops, animal husbandry, horticulture, soils, and farm management.³ The more recent development under the stimulus of the Smith-Hughes Act (see Chapter IX)

¹ Report of the Commissioner of Education, Department of the Interior, Part I (1916), p. 237.

² Statistics of Public High Schools, 1917-1918, *United States Bureau of Education Bulletin No. 19* (1920), p. 12.

³ (XII) (10), p. 90.

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has been in specialized courses rather than in general agriculture, although this course is still often given in high schools.

Aims and values. The aims in the subject are to be inferred from what has just been said concerning the status of the subject. The Committee on Agriculture in Secondary Schools coöperating with the Commission on the Reorganization of Secondary Education referred to the aims as "threefold, namely, nonvocational, prevocational, and vocational."¹ In support of the first two of these aims this committee said :²

Some school time should be devoted to the study of the most important industries of the locality, State, and Nation, largely for the informational value and apart from vocational motives. Since agriculture is the most fundamental of all industries and since the number engaged in agriculture is much greater than the number engaged in any other industry, the schools are justified in devoting some time to the nonvocational study of agriculture.

The prevocational aim is to introduce the growing child to the out-door world, to manual labor, and to the great field of science. This instruction should train the child in the simpler phases of farm life and at the same time present to him the scientific wonders of the world immediately about him. This instruction should come in the seventh and eighth grades and should be of such a character that if the boy is unable to continue his studies in the high school, his training in agriculture will help him in his future farm work.

Speaking of the third, the vocational aim, the committee continues :²

Vocational agricultural education is that education which (1) gives the skill and knowledge necessary to the control of plant and animal production, to the end of economic profit, and (2) is so articulated with other education as to promote the most desirable farm community life.

When tested by the criteria applied to other subjects, we may say that the one aim of the secondary school to which the

¹ (20), p. 7.

² Ibid. p. 8.

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specialized courses should contribute most is the vocational aim. The information and experiences supplied by the general courses should contribute to industrial and social intelligence, which bears on the civic-social-moral aim and also in significant ways on the function of exploration and guidance. Other relationships to aim and functions there would be, but these are the most vital.

The proposed program in agriculture. The Committee on Agriculture suggested the following specialized courses in agriculture for high-school grades: farm crops, horticulture, animal husbandry, poultry, soils, farm engineering, and farm management. It is not uncommon to find dairying, farm shop, rural sociology, and other content set up into special courses. For the junior high school the course in general agriculture is more appropriate, although it is not frequently offered there, even in smaller communities. This course also has, as already mentioned, a place in high-school grades for general education, and for this purpose may be made up in differing proportions of agronomy, animal husbandry, horticulture, farm mechanics, farm management, and rural sociology.

IV. COMMERCIAL SUBJECTS

Development and present status. As with the treatment of agriculture just concluded, this section dealing with the commercial subjects will be briefer than it would be if this field had not already been given some attention in the discussion of vocational education (Chapter IX). Although it found recognition as bookkeeping and "mercantile" (commercial) law in the academy, it was left for the high school (stimulated no doubt by the development in private commercial schools) to open it up as a large field of instruction. It was referred to in Chapter XI as that one of the four subject groups designated as the "practical arts" which experienced the greatest gain in recent years. The enrollment in each course in 1921-1922

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was reported in Chapter IX. The enrollment in all commercial subjects in that year was equal to 42 per cent — approximately two fifths — of the total enrollment reported for the public high schools. The three subjects in which the enrollment was far larger than in others were bookkeeping, shorthand, and typewriting, the percentages being, respectively, about 12.6, 8.9, and 13.1. In no other subject (in Chapter IX the list was shown to include commercial geography, commercial history, and penmanship) did the proportion rise to 2 per cent. The courses found by Stout to be offered in three or more of forty North Central high schools in 1915-1918 were, in addition to those already named, commercial English, accounting, banking, office practice, salesmanship, and advertising.¹

Aims and values of commercial work. The aims believed by teachers to be valid for high-school commercial work are shown in Fig. 62. On the first the teachers are almost unanimous. This aim — *general preparation for business careers* — is sadly belied by the typical high-school offering in the field, since the courses most commonly given are bookkeeping, shorthand, and typewriting. These subjects are clearly pointed toward the second aim, which is concerned with furnishing the *technique requisite for business (clerical) positions*, but it may be seen that this aim is concurred in by less than half the teachers. The occupations most often named in response to a request to list the specific occupations for which preparation is given are bookkeeping and stenography, but general office work, "clerical" work, and typing were also named by a few teachers.² *Training with a view to fitness for later business positions of responsibility* is recognized as an aim by little more than a fourth of the teachers who replied. The last aim, *training for the highly specialized occupations to be found in large business organizations*, does not commend itself to teachers of commercial branches.

¹ (XII) (16), p. 220.

² (XII) (10), p. 155.

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There is multiplying evidence that both the typical offering and, to a large extent, the conception of the aims are out of accord with the needs for commercial education. This may be illustrated by facts concerning commercial occupations in Cleveland. Examining first the distribution by sex in non-administrative commercial positions as reported in a survey for that city, one finds 61.5 per cent of men and 38.5 per cent

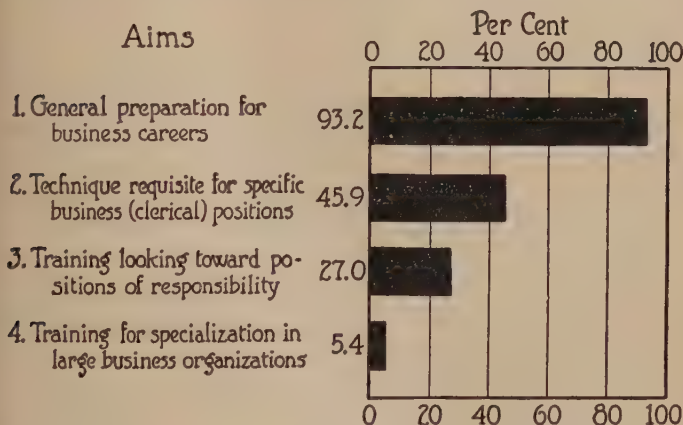


FIG. 62. Percentages of seventy-four teachers concurring in certain aims in the commercial subjects. (Adapted from (XII) (10), pp. 154-155)

of women. The distribution of these percentages for the two sexes to four large classes of occupations is given in Fig. 63. Although the differences between the sexes is seen to be marked, they are not so large as could be shown in a more detailed analysis of what men and women do. The same survey found men occupying 94 per cent of all administrative positions, and women occupying only 6 per cent. Both these significant differences for the two sexes call for distinct differences in the kind of training — differences, however, which are seldom provided. As concerns the aims listed above, they demand genuine progress toward achieving the first by an

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expanded type of offering less restricted to the narrow technical phases which are sometimes the only ones recognized, and (at least for boys) toward an elevation of the third to a more prominent position. Moreover, important occupations not now represented in the training offered require recognition. The outworn traditions borrowed from the private business school of a generation or more ago should long since have been discarded, as has already been done in a small proportion of better commercial departments.

What has been said thus far concerning the aims of commercial education refers largely to four-year high schools and senior high schools and is not generally applicable to junior-high-school grades. Extended specialization in any phase of the commercial field is usually regarded as out of place on this level. A good formulation of objectives of commercial work in the junior high school is one being observed in Denver: "(1) to aid the pupil to discover, and begin to develop, his ability along commercial lines; (2) to give the pupil who may leave school early basic training which will be of service to him in whatever line he may find himself located; (3) to give introductory vocational training in so far as possible for those commercial occupations which surveys show are entered by boys and girls who leave school during junior-high-school years;¹ (4) to make future commercial education more vital and meaningful regardless of the length of time it may be pursued."²

Judged by the aims of secondary education, commercial subjects in the four-year high schools and senior high schools should contribute primarily to vocational preparation, but, to the extent that social-business subjects are emphasized, they should contribute also to the civic-social-moral aim. In the junior high school these subjects will bear most on exploration and guidance, but they should contribute also to

¹ The report of such a survey is given in (34).

² (28), p. 7.

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the civic-social-moral aim and somewhat to the vocational aim as called for in the Denver objectives and to training in the fundamental (arithmetical) processes. Since they constitute enrichment of the program, they help to democratize secondary education and to recognize individual differences. It has been seen that their claims to values in transfer differ

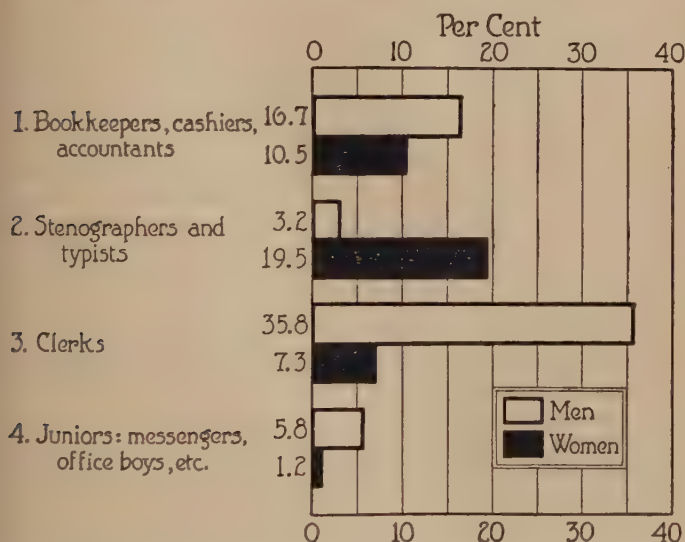


FIG. 63. Percentage distribution of men and women in nonadministrative positions in Cleveland. (From B. M. Stevens (33), p. 21)

from one course to another within the field and that in this respect they are not notably better or worse than other subjects (see Chapter XI).

The program in commercial subjects. Consonant with the growing consciousness of the inadequacy of the present high-school commercial program, a number of important changes are being made. There are, for example, (1) additions to the offering and (2) organization of the expanded offering into

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differentiated curricula. A committee working with the Commission on the Reorganization of Secondary Education has recommended adding such subjects as economics (or business), business organization, advertising, salesmanship, and store practice to those already available. They map out also three differentiated curricula applicable to the eleventh and twelfth grades and better designed to meet modern requirements than were former arrangements. The lines of emphasis provided for in the curricula are suggested in the names given them: (1) general business and bookkeeping curriculum, (2) stenographic and pre-secretarial curriculum, and (3) retail-selling and store-service curriculum.

Commercial work in junior-high-school grades. Rodgers found bookkeeping, typewriting, and even stenography (sometimes though not frequently) offered in junior-high-school grades.¹ One may not be disposed to question the desirability of giving pupils in these grades some contact with these technical portions of the commercial offering, and still may feel that junior-high-school purposes are not being adequately served. These purposes as they concern commercial work have been stated above; they call for a much wider contact with the field than would be afforded by brief courses in the subjects named. Textbooks suggestive of appropriate content have appeared. They contain (1) general information and training along business lines desirable for all irrespective of occupational destination, and deal with business forms, filing, banking, insurance, exchange, travel, business law, and the like; (2) some special consideration of a number of commercial occupations, most of them of the type which pupils who seek employment on completing the work of junior-high-school grades will be likely to enter. The value of such courses in general business training, in guidance, and in preparation for "junior commercial occupations" is

¹ J. Harvey Rodgers, "Junior High School Curricula and Programs," *School Review* (March, 1921), Vol. XXIX, pp. 198-205.

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apparent. Combined with exploratory experiences in the technical subjects reported by Rodgers as being offered in junior high schools, they should constitute a satisfactory commercial program for these grades.

V. MUSIC

Status of music in the high school. Attitudes toward music in this country have been such as to give it little more than occasional recognition in the secondary school until after the opening of the present century. In recent years these attitudes have experienced some improvement. Data gathered by the United States Bureau of Education show that the registration in music of all reported types was equivalent in 1921-1922 to 25.3 per cent, or a fourth, of the total enrollment in high schools.¹ The offering now takes a variety of forms, as may be seen in Table XLII, which gives the numbers of high schools in a total of three hundred and fifty-nine

TABLE XLII. NUMBERS OF HIGH SCHOOLS (IN A TOTAL OF 359 HIGH SCHOOLS REPLYING FROM 36 STATES) REPORTING CERTAIN OFFERINGS IN MUSIC AND GRANTING CREDIT TO PUPILS ENROLLED ²

OPPORTUNITIES IN MUSIC	SCHOOLS OFFERING	SCHOOLS GRANTING CREDIT
Required chorus	154	59
Elective chorus	180	94
Assembly singing	322	14
Boys' glee club	206	113
Girls' glee club	255	133
Mixed glee club	117	31
Orchestra	278	159
Band	88	46
Harmony	123	96
Other theoretical work	83	54
Music appreciation	155	88
History	110	83

¹ *United States Bureau of Education Bulletin No. 7* (1924), pp. 46-47.

² (40), p. 46.

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reporting as to the kinds of training in music which were being offered. The proportions making the several types of offering are probably much higher than would be found in any random sample of high schools. Nevertheless they do show the proportional frequency of each of the types in relation to each other. The list contains four groups of opportunities: (1) chorus (either elective or required), (2) assembly singing, (3) organizations (glee clubs, orchestras, and bands), and (4) what may be termed "academic" music. In addition, a number of schools grant credit for applied music, that is, instrumental and vocal music. The credit is offered in two ways: first, for lessons taken in the school; secondly, for lessons taken under private teachers outside the school.¹

Aims and values of music. A committee on music working under the direction of the Commission on the Reorganization of Secondary Education claimed four main values for the subject: (1) its æsthetic nature and value, (2) its value as a socializing force, (3) its value in the worthy use of leisure, and (4) its value as a vocational subject. It is not practicable to report all the statements made in support of these values, but a word may be said concerning each. Our schools have been keeping an eye so single to intellectual training that it is highly desirable that they give some attention to the development of the pupil's emotional and æsthetic make-up. This can be encouraged by a proper recognition of the æsthetic arts. Referring to music as "the most social of all the arts," the committee points out that "few other experiences so quickly bring about group feeling as ensemble singing or playing." The significant relation of music to recreation is also emphasized, it being pointed out that "the power of music in this respect is greatly increased when the individual himself takes part in a musical performance. . . ." The recreational value is, of course, dependent on the first two values given above. Concerning the last value, the commit

¹ (40); pp. 7, 46.

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tee says, "Music should be recognized as an important vocational subject, and reasonable provision for vocational training in it should be made by high schools." ¹

A careful reading of the statements in advocacy of these claims in the original report discovers that the committee lays a good deal of stress on *production* of music to achieve those values (including the first and the third) which have to do with æsthetics and recreation. Doubtless, appreciative listening is enhanced through training in production.² But for most pupils it will be found impracticable to train for production, except perhaps in chorus singing, and efforts will need to be made to secure appreciation on their part without it. Mechanical reproduction by player pianos, phonographs, and radios has come in and is discouraging amateur performance. A small proportion of the gifted may attain skillful amateur instrumental or vocal performance, and a few may make progress anticipative of professional proficiency; but for the bulk of high-school pupils the most that should be expected is to sing in chorus our standard songs. Nevertheless, wherever the ambition to learn to perform appears, accompanied by sufficient native talent to warrant it, the school should see that it is encouraged.

The relationships of music to the aims of the secondary school are apparent. It can contribute something to the achievement of the civic-social-moral aim. High schools of good size can bend it to vocational purposes for a small proportion of pupils. Its greatest contribution, however, must be to the recreational aim. The functions that can be served by music are exploration for guidance, the recognition of individual differences, and (by affording opportunities for group life through organizations) the recognition of the nature of the adolescent.

The proposed offering in music. The committee referred to recommends the course in chorus singing to be offered to

¹ (39), pp. 12-14.

² On this point see (XII) (9), pp. 353, 356.

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pupils of all years. Whether it is to be made required or elective depends on the degree of interest in music in the given school. Orchestras should be opened to all years of the high school, bands are commended as creating much interest in music among boys, and glee clubs of boys, girls, and mixed voices are approved. There should also be courses in music appreciation and theory (elementary theory and harmony). The committee feels that the general adoption of the plan sometimes followed, of offering courses in applied music — voice, piano, violin, etc. — on the same basis as other subjects cannot reasonably be expected for some time to come; hence it recommends that credit be given for such work taken under special teachers outside the school. A plan is proposed for crediting such work.¹ This practice is still much in debate in our secondary schools.

Junior-high-school music. Typical courses in music in the last two grades of the eight-year elementary school are restricted to an upward extension of the sight-reading characteristic of the grades below. For the first year of the four-year high school the typical offering is chorus singing. Membership in the musical organizations is also frequently opened up to the high-school freshman, as well as credit for applied music. In effecting junior-high-school reorganization the musical practices of the conventional organization have too often been carried over unchanged, except that membership in musical organizations has been made available to the seventh and eighth grades. To continue to insist on sight reading for all is not to adapt the work in music to the needs of junior-high-school pupils nor to the distinctive services to be rendered by this unit in the system. Except as to simpler forms they should not be unlike the opportunities recommended for the high school, to the end of a better recognition of individual differences in ability and interest and a more satisfactory exploration for guidance.

¹ (39), pp. 18-32.

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VI. ART

The status of art as a high-school subject. Although drawing was listed among the subjects recommended by Franklin to be offered in the first academy, and although it had some place in the academy and in the early high school, art (other than music and literature) as a field of instruction, even in recent years, has had a smaller proportionate recognition in secondary schools than most of the subjects and subject groups which are canvassed in this and the foregoing chapters. Elementary schools have rather generally given training in this field, but on the high-school level the proportion is much smaller. Individual schools, usually among those of good size, have sometimes made conspicuous offerings. Illustrative of the amount of work listed in this field by schools making it available are the numbers of years of art reported to the writer for eighteen high schools. Five of these had a one-year course. At the other extreme were nine offering four years of art. The four remaining schools were distributed between these limits.¹ When offered, art is almost always an elective subject. Freehand drawing and design are the most common constituents of the courses reported, but there are also courses and parts of courses devoted to commercial art, lettering, landscapes, jewelry, pottery and other crafts, color theory, history of art, and certain domestic applications, such as clothing design and interior decoration.

Aims and values. Art has so many connections with modern life that it is not at all difficult to set up claims that should demand for it a much larger place in our training programs than it has so far enjoyed. To name only a few important phases, there are the fine arts, arts and crafts, art in industry, art in commerce, and art in home and community, with which the school treatment of the field can and sometimes does work out significant relationships. Such relation-

¹ (XII) (10), pp. 159-162.

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ships may be thought of as divided into two major groups, — one pertaining to occupational preparation and the other to those general needs applying to all of us irrespective of occupational pursuits. Illustrative of the first group must be the needs of industrial or commercial designers, landscape and portrait painters, sculptors, and architects. The needs in the second group are much more pervasive, since they include (1) appreciation of the fine arts by all; (2) "good taste and artistic appreciation based upon a sound knowledge of those art principles which may be used in connection with ordinary things of common everyday life"; (3) some ability in practical drawing as a "means of supplementing expression in the written and spoken word"; (4) direct avocational use by a small proportion of the population having native ability in drawing, sketching, etc.; and (5) certain "general educational values." Among the latter are the "development of special mental processes and bodily reactions" (for example better coördination of mind, hand, and eyes); special type of observation, originality, invention, and initiative; "the power of visualization, aiding in the capacity of seeing things before they really exist." Whitford, whose formulation of aims¹ has thus been partly paraphrased, writes of the second of these values in the following words: ²

Better taste and enlightenment in regard to art quality which can be applied to common materials of everyday life result in increased capacity for enjoyment. A type of art knowledge which assists in the problems of dress, the home, and the community has a double reaction for good. It produces a demand for better products on the part of the people. This demand in turn stimulates manufacturers to produce goods of better artistic quality to meet the public taste. Hence both consumer and producer may be encouraged to work together to raise the artistic standards in all things. The democratizing of art also results in a direct benefit to art. Art has always made its greatest progress when it has been most closely connected with the everyday needs of the human race.

¹ William G. Whitford (48), pp. 759-760.

² Ibid. p. 760.

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This value in a more discriminating *consumption* of art products is being much emphasized in recent discussions of instruction in art. This emphasis, coupled with that on *appreciation* of the fine arts as an aim, raises again a question touched on in dealing with music: the relation of training in production to the achieving of appreciation. The point of view here, as there, is that the attainment of such a value as appreciation can be increased by production, but that for most pupils it is impracticable. On account of restrictions on time and on native ability, appreciation must be achieved with a minimum of productive activity. It would be a sheer impossibility to give all pupils productive experiences in any large proportion of the great variety of arts in which consumption and appreciation are desirable. This necessity should influence decidedly the content and method of the general courses in art.

If one thinks of these values in consumption and appreciation in their relationships to the aims of secondary education and the aspects of complete living which they touch, it may be seen that they overlie chiefly training for civic-social-moral responsibility and for recreational and æsthetic participation and appreciation. To the extent that they affect such matters as clothing and shelter, they also concern health. How far high-school art should go in achieving the remaining aim — training for occupation — will depend upon the size of the high school and the interests, occupational and other, of the community being served. In this field probably only a small proportion of schools should go further than to "equip their pupils with a *good art foundation* on which to build when they enter upon the definite specialized training to be followed in the art or technical school."¹ In adapting the training in art to performance of the functions of the secondary school we should not lose sight of the rich possibilities in exploration and guidance, in the recognition of individual differences in

¹ Whitford (48), p. 763.

ability and interest, and in democratization of education on this level by bringing to all some measure of the culture which has been too often reserved for the few. Perhaps, also, there is something to be said for training in art on the ground of recognition of the heightened æsthetic and emotional interests of adolescence; of equipping the pupil to some extent with another "fundamental process," since drawing is often claimed to be a more universal means of expression than language itself; and of certain transfer values. In the last of this group of claims, however, there should be guarded acquiescence until the relationship has been more clearly demonstrated. This review concedes broad values to courses in art when properly administered.

The offering in art. Whitford has proposed three types of courses in this field for the high school: (1) a general art course which should be required of all, (2) special art courses which would be elective (for pupils of special talent), and (3) a course in the historical survey of art, also elective. He urges that the required course be planned to meet the demands of the great majority of high-school pupils rather than those of a few of the especially talented. This course as outlined by Whitford emphasizes production more than would be approved by the conclusions stated above, but its content, as indicated by the methods and media recommended for use and the reading and observational portions listed, would give pupils a much wider view of the field than is ordinarily achieved.

While dealing with the high-school offering in art, account should be taken of the opportunities for its correlation with other subjects of study. Some subjects offer exceptional opportunities for emphasis on art, among them literature, manual arts, and home economics. But there is scarcely a subject which does not have important relationships to art. Utilizing these will assist materially in achieving the values of instruction in art as these have been outlined.

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Art in junior-high-school grades. It has been customary to require work in this field of all pupils in the upper grades of the eight-year elementary school. This work has usually been designated as "drawing," and although the media used have not been restricted as implied in this name, the emphasis has been on production and the attempt to develop technical skill. Better schools and teachers have of late widened the scope of productive activities and purpose. Junior-high-school reorganization appears to make the enrichment of the typical offering in seventh and eighth grades feasible as well as desirable by substituting for it general courses not unlike the one recommended by Whitford for all pupils in the high school, unless, perhaps, the emphasis on production might be somewhat reduced. Production should, however, still be retained as an important element, especially as it would contribute to the "try-out," or exploratory, service the junior high school is called on to render. The try-out experiences and other content should be more widely representative of the field of art and of the occupations involving art than is afforded through the conventional courses.

VII. PHYSICAL EDUCATION

Development and status of physical education. To relate the history of physical education in its most important manifestations in secondary schools would require a description of the development of training in hygiene and sanitation, of physical training, and of athletics. Because of limitations of space this cannot be done, although a few comments will be made concerning the phases mentioned. (1) The prototype of present-day courses which stress matters of hygiene was physiology, which was sometimes taught in the academy at least as early as the second quarter of the last century.¹ The

¹ Walter J. Gifford, *Historical Development of the New York State High School System*, p. 20. J. B. Lyon Company, 1922.

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subject had a good deal of favor in the high school, although it cannot be said that it had much intimate and direct bearing on health until recently. It was shown to have been offered in 85 per cent of the North Central high schools represented in Stout's investigation in 1860-1865 and in 70 per cent in 1896-1900.¹ The decline seen in this thirty-year period continued, as is disclosed by the fact that the percentages were 65 and 52½ for the schools representing the periods 1906-1911 and 1915-1918 respectively.² This decline is not to be interpreted as a falling off of interest in health problems. It has been shown in Chapter XII (p. 415) that these are being increasingly recognized in composite courses, such as general science and biology, which are taken by rapidly mounting proportions of pupils. Community aspects are also dealt with to some extent in courses in community civics. (2) Gymnastics of European origin had scattered recognition before the middle of the last century, but it was not until late in the century that the real foundations were laid for the more recent rapid development of physical training. By 1921 twenty-eight states had passed legislation on physical education, most of them making it mandatory. Most of the laws bear upon both elementary and secondary public schools. Military training has had occasional spurts of growth, stimulated by our wars, but the proportion of public high schools in which it is now taught is small.³ (3) Athletics had its great initial growth in the latter part of the nineteenth century. Since consideration of the health problems in courses in science is dealt with in Chapter XII, and since athletics as an extra-curricular activity is referred to in Chapter XVI, the remaining portions of this section will treat them little more than incidentally.

Aims and values of physical training. The rapid growth of physical training in secondary schools is further evidence that we are ceasing to think of education as solely concerned with

¹ See Table XXXIII, p. 415.

² (XII) (16), p. 220.

³ See page 346.

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man as an intellectual being, and are realizing that his physical being also needs care, development, and sometimes even correction. The obvious first aim of this new member of the family of school subjects is to secure and conserve health. It should do this through the immediate effect of well-directed exercise and also through its encouragement of lifelong habits of physical recreation. This was not so imperative in the earlier period of American life, when conditions called for a large amount of physical activity; but urbanization, with all its accompaniments encouraging physical passivity, has demanded compensatory modification of the school régime.

But there is a significant trend of conviction that physical education properly administered can render a high type of social and moral service. For example, Nichols, after considering briefly the basic health objective, writes:¹

On the other hand, there are many educators who believe that, because physical-education activities afford opportunity for experiences which are so natural and instinctive and lie so close to the heart of every normal boy and girl, the teacher in this field holds an exceedingly strategic position and peculiar power in moulding the social and moral attitudes of young people.

Williams, in a somewhat similar vein, writes as follows:²

The aims of physical education should be higher . . . than those usually given. So many specialists in this field are only interested in producing perspiration. The physiological aim is not enough. . . . Physical education may be so conducted as to set a standard of living that will surpass the average and commonplace. There should be in such a scheme of things something of the healthier virtues of courage, endurance, strength. . . . Physical education should never be satisfied with technique. It may well aim to afford an opportunity for individuals to act in situations that are physically wholesome, mentally stimulating and satisfying, and socially desirable.

¹ J. H. Nichols (57), p. 249.

² Jesse F. Williams (67), pp. 16-17.

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It is frequently contended that these social and moral values are more readily achievable in physical activities involving competition than in the usual formal gymnastics to which conventional courses tend to adhere. The following quotation takes this view:¹

All normal children and youths like games and athletics. These may give all that calisthenics and gymnastics give and more besides. Games and athletics awaken greater interest, make possible more desirable forms of competition, allow for complete loss of self-consciousness, make for spontaneity, for initiative, for team play and yet for individual display at proper times, for the learning of ethics or the rules of sportsmanship. . . .

If these claims of physical education have validity, as may be conceded for school situations in which definite steps are taken to fulfill them, there are indubitable relationships to three of the four aims of secondary education, namely, with respect to health, social-moral qualities, and recreation on the physical plane. There are relationships also to certain functions, among them the need of recognizing individual differences and adolescent nature.

The program in physical education. The outline of the health program recommended for the high school by a committee coöperating with the Commission on the Reorganization of Secondary Education includes (1) a careful health examination, (2) a healthful environment in home and school, (3) instruction in health programs, (4) physical activity, and (5) school credit.² Since our concern here is chiefly with the portion designated as physical activity, it may be reported in addition, that this committee was of the opinion that two double periods of ninety minutes each a week should be considered a minimum for this work, this allotment covering fifteen minutes of instruction in hygiene once each week time for undressing, exercises and games, shower, dressing

¹ P. K. Holmes (55), p. 374.

² (60), p. 9.

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and return to classroom. The kinds of exercises recommended are the physiological and the character-building activities. The first of these "should be those which call into play vigorously the large fundamental groups of the big muscles; these exercises are related to the development of vigor, endurance, and power. This instruction should be supplemented by exercises of skill, grace, and alertness. Special attention should be given to securing good postural habits while standing, sitting, and exercising. . . . Instruction should be given in gymnastics, athletics, swimming, and team games for all pupils."¹

As regards the character-building activities the committee recommends that "the curriculum of activity [in team games and athletic contests] both in school and after school should include all pupils, and should be related not only to health, but to right conduct."²

Rapeer, in a report on "minimal essentials of physical education," lists the following nine types of activity which may enter into a complete program:³

1. Free and supervised play, including dancing.
2. Free and supervised athletics.
3. Boy Scouts, Camp Fire Girls, and other similar activities.
4. Wholesome motor activity in connection with school, and other work activities of many kinds.
5. Handicrafts and other similar physical avocations.
6. Formal physical training, or gymnastics in the narrow sense.
7. Orthopedic, therapeutic, or medical gymnastics.
8. School excursions, tramps, and hikes.
9. School dramatics, posturing, etc.

Military drill is seldom commended, and often opposed, as a substitute for physical training. Values most frequently mentioned have to do with posture and carriage and with inculcating habits of obedience; deficiencies referred to

¹ Ibid. pp. 16-17.

² Ibid. p. 17.

³ Louis W. Rapeer (61), p. 179.

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include its restricted value in real physical education. Its critics have emphasized that the military drill offered in high schools, even when viewed as military training, is of very meager value and has negligible significance in "preparedness."

In junior-high-school grades. The physical-education program in the junior high school has the same broad aims as those set down for the high school. This is seen in the following formulation for this work in the Skokie School in Winnetka, Illinois:¹

First, we think it desirable to develop strong, healthy, normal bodies and minds. Second, we think it desirable to foster certain personal, civic, and social attitudes which we believe to fall within the responsibility of the school.

A brief quotation will describe physical education as conducted in this school:¹

We believe that having a large number of competitive games offers the big muscle training and lung development and the precision and promptness of response which are the aims of most gymnastic training, and at the same time satisfies a majority of the play tendencies of early adolescent children. The danger of overstrain which frequently accompanies competitive games can be eliminated by adequate supervision of the children's activities, and it is understood on our playgrounds that games may be interrupted at any time that a player shows fatigue. Our play periods, therefore, have been given over to speed ball, soccer-baseball, baseball, Newcomb, volley ball, dodge ball, and a large variety of relays. One period a week is devoted to folk dancing for the girls; this is very popular. One period a week during portions of the year is devoted to corrective gymnastics for those children who, in the annual physical examinations, are shown to be suffering from physical defects.

The games are carried on under conditions which assure the development of the positive personal and social attitudes

¹ Harry P. Clarke and Willard W. Beatty (54), p. 533.

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comprehended by the aims. In addition to the physical education during the school day, this school has an after-school sports program which secures the participation of almost all boys and girls.

While dealing with physical education for junior-high-school pupils it is desirable to refer again to the rapid physical differentiation taking place between boys and girls in these grades and the necessity of adapting the work to this differentiation. Conventional eight-year schools and even junior high schools have been known to ignore these differences and try to administer identical courses to all pupils enrolled. If the physical activities are adapted to the needs of girls of these ages, they will not ordinarily be suited to the greater vigor of boys; and if suited to boys, the work will tend to be too vigorous for girls.

Relationship to supervision of health. The movement for supervision of health (or medical inspection) also has made much headway in recent years. Small ¹ reports that by 1919 thirty-nine states had enacted laws, either mandatory or permissive, relative to supervision of the health of the schools. He shows also that in the same year more than two thirds of cities of more than twenty-five hundred population responding to inquiries on this point reported having such supervision. The proportions were greatest for the largest cities. This movement is mentioned here because supervision of health may be so administered as to have important relationships to the whole program of physical education. The objects of such supervision are detecting infectious diseases, overcoming physical defects of pupils, and improving the sanitary conditions of classrooms. In accomplishing the second object physical examinations are given. It is possible to relate the results of these examinations to physical education, and vice versa. Unless this is done, not all the values of either type of activity will be secured.

¹ Willard S. Small (62), pp. 2-4.

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QUESTIONS AND PROBLEMS

1. Which of the groups of subjects of study treated in this chapter were considered by the Committee of Ten on Secondary School Studies (see Chapter I, Reference 23)?

2. Make a study of the provisions made in some state or group of states for the subjects treated in this chapter.

3. Make a study for some other state, after the manner of Smith's study of industrial subjects offered in the high schools of Minnesota.

4. Offer an explanation of why the objectives entertained for the industrial arts emphasize the disciplinary values as much as they do.

5. Describe the differences that should obtain between a course in automobile mechanics planned to afford vocational training and one which is taken as part of a "general" high-school course.

6. Discuss from the standpoint of service to individuals and to society the relative importance in the curriculum of manual arts and of home economics.

7. Explain why home economics is not taken oftener and in larger amounts by girls in many of the high schools in which it is offered.

8. Why has progress away from courses restricted to cooking or sewing toward more comprehensive courses not been more rapid?

9. Point out in some detail the values in general education of a course in general agriculture.

10. Investigate the kinds of occupations in which graduates of some high-school commercial department are at work, and draw conclusions concerning the nature of the work which should be given.

11. Evaluate the claim that ability in performance is necessary to appreciation of music or art, by investigation of this relationship among your acquaintances.

12. Make a list of the relationships of art and life which you encounter during a typical day.

13. List the pros and cons of requiring a course in art of all high-school pupils, as proposed by Whitford.

14. Observe some interclass or interscholastic athletic contest to note to what extent the social values are being achieved.

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15. Discuss the advantages and disadvantages of military drill in the high school.

16. Canvass in some detail the possible relationships of physical training, the teaching of science as it relates to health, and health supervision.

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XIV

THE SECONDARY-SCHOOL OFFERING: THE PROGRAM OF STUDIES

I. TYPES OF PROGRAMS OF STUDIES

Meaning of "program of studies" and "curriculum." The concern of the present chapter is the "program of studies," a term which, as here used, refers to the entire offering of subjects and courses in a given school, including its plan of organization and other features of its administration. It is not to be confused with the daily or weekly program, that is, the schedule of classes on which the school is being run. The term "curriculum" is used in this chapter to mean the arrangement of courses or subjects taken by a pupil or a group of pupils during progress through a secondary school. Ordinarily a curriculum is thought of as a schematic arrangement of courses designed to meet the needs of some particular group of pupils. This usage is the second of the two senses of the word referred to at the opening of the section on methods of curriculum-making in Chapter XI.

Why the program of studies should be considered. If the secondary schools were still operating with a restricted offering the problem of planning the program of studies would be much simpler than it is; but the rapid expansion of the work available to the pupil (at least in schools of good size) has been attended by an increasing complexity which leads to too prevalent uncertainty of the grounds on which differentiation should be accomplished. The range in the total amount of work offered may be illustrated from Thomson's study. He showed that in the high schools of a group of ninety cities

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ranging in population from 2500 to 100,000 in the Middle West the average number of units in the total offering in 1923-1924 was 41.2. What this means in spread may be better appreciated when it is recalled that the usual requirement for graduation is 16 units. For this same group of schools the average had increased from 37.7 units (that is, by 3.5 units) in the five-year period beginning in 1918-1919. The larger cities of the group — those with populations ranging from 25,000 to 100,000 — offered an average in the later year (1923-1924) of 54.8 units, and the city with the widest offering listed as much as 106.9 units.¹ Schools and cities can be found, of course, with even larger offerings.

The magnitude and the complexity of the problem are also suggested by the diversity in combinations of subjects taken by any considerable number of pupils in high schools of good size. Thorndike and Robinson have illustrated this diversity for pupils in the ninth, tenth, and eleventh grades in certain cities. Data suggesting the wide variation in combinations of subjects are presented in Table XLIII, taken from the report of their study. Only two cities (G and I) had over a seventh

TABLE XLIII. DIVERSITY OF COMBINATIONS OF SUBJECTS TAKEN BY TENTH-GRADE PUPILS IN CERTAIN CITIES ²

CITY	NUMBER OF PUPILS REPORTING	NUMBER OF DIFFERENT COMBINATIONS	LARGEST NUMBER TAKING ANY ONE COMBINATION
C	256	90	36
D	154	102	9
E	139	110	6
F	85	55	8
G	75	25	23
H	60	45	4
I	51	9	32
J	32	24	4

¹ Thomson, *The High-School Programs of Studies in Operation in Certain Cities of the North Central States*, p. 70. Master's thesis on file in the Graduate School of the University of Minnesota, 1923.

² Edward L. Thorndike and Eleanor Robinson (15), p. 120, Table II.

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of their tenth-grade pupils taking any one combination. One may conclude that, with the variation which exists in other grades of the high school, there would be a small proportion, indeed, of pupils who would come through the four-year period having had identical programs. There can be no intent here to imply adverse criticism of the practice resulting in such diversity. The needs of pupils may justify it. Any question raised must concern not so much the *extent* of the diversity as the *policies* at work in determining it.

The types of programs of studies in four-year high schools illustrated. Examination of the programs of studies in operation in any large number of four-year high schools shows them to fall into four groups which will be referred to as the *single-curriculum type*, the "pure" *multiple-curriculum type*, the *constants-with-variables type*, and the *combination type*. They will be illustrated in this order, which is in effect the order of complexity. The basis of selection of illustration was not to commend, but rather to explain, the types.

1. The simplest program of studies is the *single-curriculum type*, which requires identical work of all pupils throughout the four years. This type is illustrated in the following example which was found to be in operation in a small community of about five hundred population in a Mid-Western state.

FIRST YEAR

English, 1 unit
Algebra, 1 unit
Commercial arithmetic, 1 unit
Citizenship, $\frac{1}{2}$ unit
General science, $\frac{1}{2}$ unit

SECOND YEAR

English, 1 unit
Plane geometry, 1 unit
Ancient history, 1 unit
Citizenship, $\frac{1}{2}$ unit
General science, $\frac{1}{2}$ unit

THIRD YEAR

English, 1 unit
Medieval and modern history,
1 unit
Biology, 1 unit
Animal husbandry, $\frac{1}{2}$ unit
Economics, $\frac{1}{2}$ unit

FOURTH YEAR

English, 1 unit
Physics, 1 unit
American history, $\frac{1}{2}$ unit
Civics, $\frac{1}{2}$ unit
Social problems, $\frac{1}{2}$ unit
Reviews, $\frac{1}{2}$ unit

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This type of program is ordinarily found only in small high schools, where it is felt that the range of work offered must be restricted.

2. The *multiple-curriculum type* of program of studies sets up two or more curricula, one of which the pupil selects and is presumed to follow throughout the four-year period. In its "pure" form (the one considered at this point) all the subjects in each year are prescribed, no variation being allowed except in selecting the curriculum pursued. A simple example of this type is one in operation in a Mid-Western high school in a community of moderate size in which three curricula were listed: the classical, the scientific, and the commercial. The fully prescribed nature of the curricula is shown in the following list of subjects which must be taken by all pupils taking the commercial curriculum. The two remaining curricula need not be reproduced for our purpose here.

FIRST YEAR

Business English, 1 unit
Algebra, 1 unit
General science, 1 unit
Commercial arithmetic, $\frac{1}{2}$ unit
Bookkeeping, $\frac{1}{2}$ unit

SECOND YEAR

English, 1 unit
Plane geometry, 1 unit
Biology, 1 unit
Commercial law, $\frac{1}{2}$ unit
Commercial geography, $\frac{1}{2}$ unit

THIRD YEAR

English, 1 unit
General history, 1 unit
Bookkeeping, 1 unit
Stenography, $\frac{1}{2}$ unit
Typewriting, $\frac{1}{2}$ unit

FOURTH YEAR

English, 1 unit
American history, $\frac{1}{2}$ unit
Civics, $\frac{1}{2}$ unit
Bookkeeping, 1 unit
Stenography, $\frac{1}{2}$ unit
Typewriting, $\frac{1}{2}$ unit

3. The *constants-with-variables type* is one in which certain subjects of study are designated as constants, — that is, as required of all pupils, — the remainder of the work being selected from additional subjects listed for each year. The following example was being used in the high school in a community of

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three thousand population. The required subjects appear in capitals; those from which the remaining work is selected in small letters. It is apparent that such a program makes possible a good deal of diversity in combination, at least after the freshman year.

FIRST YEAR

ENGLISH, 1 unit
GENERAL MATHEMATICS,
1 unit
GENERAL SCIENCE, 1 unit
PHYSICAL EDUCATION
Latin, 1 unit
Commercial arithmetic, $\frac{1}{2}$ unit
Commercial geography, $\frac{1}{2}$ unit
Home economics, 1 unit
Manual arts, 1 unit
Music, $\frac{1}{2}$ unit

SECOND YEAR

ENGLISH, 1 unit
CITIZENSHIP, 1 unit
PHYSICAL EDUCATION
Ancient and medieval history,
1 unit
Latin, 1 unit
Biology, $\frac{1}{2}$ unit
Physiology, $\frac{1}{2}$ unit
Bookkeeping, 1 unit
Home economics, 1 unit
Manual arts, 1 unit
Music, $\frac{1}{2}$ unit

THIRD YEAR

ENGLISH, 1 unit
PHYSICAL EDUCATION
Plane geometry, 1 unit
Modern history, 1 unit
Economics, $\frac{1}{2}$ unit
Social problems, $\frac{1}{2}$ unit
Latin, 1 unit
Chemistry, 1 unit
General geography, $\frac{1}{2}$ unit
Stenography, $\frac{1}{2}$ unit
Typewriting, $\frac{1}{2}$ unit
Home economics, 1 unit
Manual arts, 1 unit
Music, $\frac{1}{2}$ unit

FOURTH YEAR

ENGLISH, 1 unit
UNITED STATES HISTORY,
1 unit
PHYSICAL EDUCATION
Advanced algebra, $\frac{1}{2}$ unit
Solid geometry, $\frac{1}{2}$ unit
Economics, $\frac{1}{2}$ unit
Social problems, $\frac{1}{2}$ unit
Latin, 1 unit
Physics, 1 unit
Shorthand, $\frac{1}{2}$ unit
Typewriting, $\frac{1}{2}$ unit
Commercial law, $\frac{1}{2}$ unit
Music, $\frac{1}{2}$ unit

4. The *combination type* is a hybrid of the two types last illustrated, its characteristics being drawn from both. It provides for two or more curricula, as does the pure multiple curriculum type and, at the same time, allows for election of part of the work during one or more of the four years. It may

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be illustrated by presenting a general business curriculum, primarily for boys, which is one of eight curricula made available in a high school situated in an Eastern state, the seven other curricula being designated as follows: classical, technical preparatory, normal preparatory, general, trade, home economics, and stenographic, the last being primarily for girls. Subjects in capitals are required. Most of these other curricula are similar in that they prescribe a large part of the work, the remainder being elective from a list of subjects provided. The exception is the "general" curriculum, which is more largely elective.

FIRST YEAR

ENGLISH, 1 unit
 GENERAL SCIENCE, 1 unit
 COMMERCIAL ARITHMETIC,
 $\frac{1}{2}$ unit
 BOOKKEEPING, $\frac{1}{2}$ unit
 PHYSICAL TRAINING
 Ancient and medieval history,
 1 unit
 French, 1 unit
 Spanish, 1 unit
 Algebra, 1 unit

SECOND YEAR

ENGLISH, 1 unit
 MODERN HISTORY, 1 unit
 BOOKKEEPING AND OFFICE
 PRACTICE, 1 unit
 MODERN HISTORY, 1 unit
 PHYSICAL TRAINING
 Stenography and typewriting,
 1 unit
 French, 1 unit
 Spanish, 1 unit
 Plane geometry, 1 unit
 Biology, 1 unit

THIRD YEAR

ENGLISH, 1 unit
 AMERICAN HISTORY, 1 unit
 BOOKKEEPING AND OFFICE
 PRACTICE, 1 unit
 PHYSICAL TRAINING
 Stenography and typewriting,
 1 unit
 French, 1 unit
 Spanish, 1 unit
 Chemistry, 1 unit

FOURTH YEAR

ENGLISH, 1 unit
 CIVICS, $\frac{1}{2}$ unit
 SOCIAL PROBLEMS, $\frac{1}{2}$ unit
 COMMERCIAL LAW, $\frac{1}{2}$ unit
 ECONOMICS, $\frac{1}{2}$ unit
 Stenography and typewriting,
 1 unit
 French, 1 unit
 Spanish, 1 unit
 Physics, 1 unit

Proportionate use of the types. It has already been stated that the single-curriculum type of program of studies is

seldom found elsewhere than in small high schools, where it is sometimes felt that the range of offering cannot be made wider than the sixteen units required for graduation. Thomson did not encounter a single instance in his examination of a random sample of ninety programs of studies representing high schools of North-Central states located in communities with populations of from 2500 to 100,000. The present writer found none in a total of more than two hundred cities of the same size distributed to all the United States, among which were seventy ranging in population from 2500 to 5000. Of the ninety high schools in Thomson's study two only in 1923-1924 had programs of the pure multiple-curriculum type, twenty-two had the constants-with-variables type, and sixty-six were operating the combination type. The percentages of the three types were, respectively, 2.2, 24.4, and 73.3. This is a heavy predominance of the combination type, with the constants-with-variables type next in order.

The large high schools operate the combination type somewhat more frequently than do the high schools of smaller size. It is significant that nevertheless a considerable proportion of high schools of good size adhere to the constants-with-variables type. In recent years there has been some tendency in such high schools to include with the description of the program of studies several "suggested" curricula mapped out to facilitate the work of educational guidance, which would otherwise pile up enormously where large numbers of pupils are concerned.

Numbers and kinds of curricula offered with the multiple-curriculum and combination types. The description of programs of studies cannot be regarded as complete until data have been presented concerning the numbers and kinds of curricula made available in the types of which they are characteristic feature, that is, the multiple-curriculum and combination types. The numbers of curricula vary widely from school to school. For instance, the present writer has

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found that for one hundred and fifty high schools scattered over the entire country the numbers ranged from programs with only two curricula to others with as many as fourteen different curricula. As might be expected, the numbers were greater for large high schools than for smaller schools. When the communities represented were grouped by size of populations, the average numbers of curricula per school were as follows: 2500 to 5000 population, 3.8 curricula; 5000 to 25,000, 4.7 curricula; 25,000 to 100,000, 5.7 curricula.

The total of 702 curricula found in these one hundred and fifty high-school situations were classified as shown in Table XLIV. In the order of frequency of appearance the first seven kinds are commercial, 142; college preparatory, 73; general, 72; scientific, 66; industrial or manual arts, 63; household arts (or home-making), 55; classical, 40.

The 26 kinds of curricula lend themselves to grouping, from which a significant conclusion may be drawn. The first 17 kinds as listed are rather clearly planned to prepare for

TABLE XLIV. FREQUENCY OF APPEARANCE OF CERTAIN KINDS OF CURRICULA IN A TOTAL OF 702 CURRICULA FOUND IN 150 PROGRAMS OF STUDIES

KIND	NUMBER	KIND	NUMBER
1. College-preparatory . . .	73	14. History or social science	6
2. Classical	40	15. Technical (preparatory)	23
3. Latin	13	16. Normal-preparatory . .	25
4. Academic	23	17. Nursing-preparatory . .	4
5. "Regular"	2	18. General	72
6. Foreign language . . .	6	19. English	12
7. French	2	20. Commercial	142
8. Spanish	1	21. Normal ¹	21
9. Modern language . . .	9	22. Industrial or manual arts	63
10. Latin-scientific	8	23. Household arts	55
11. English-scientific . . .	3	24. Agriculture	16
12. Scientific	66	25. Fine arts	6
13. Mathematics	4	26. Music	7

¹ These curricula are planned to prepare for rural-school teaching, whereas the "normal-preparatory" curricula are mapped out to prepare for the normal school.

higher institutions. They include 308, or 43.9 per cent, of all the curricula found. The next two kinds, numbers 18 and 19 are planned to be more widely serviceable. They are usually so widely elective that the pupil may take work either in preparation for college or regardless of such preparation. These two kinds include 84, or 12.0 per cent, of the 702 curricula. The remaining kinds are even much more frequently planned in disregard of entrance requirements to higher institutions, although in some schools the college-entrance purpose is served even in these. These curricula total 310, or 44.2 per cent, of the whole number. *This is a proportion of all curricula fully as large as the more unequivocally college-preparatory curricula.* Combined with the "general" and English curricula, they make *well over half* of all, which impresses one as genuine progress toward rendering service to the non-college-going high-school student, even if it is admitted that some of these curricula are still somewhat weighted toward college preparation.

Relative merits of the four types of programs of studies
Although a comprehensive evaluation of the four types of programs of studies cannot be attempted, some comments in appraisal may be ventured. The single-curriculum type is so patently inadequate to the function of recognizing individual differences — not to mention a number of other purposes of the modern secondary school — that it may be passed by with the statement that it can be justified only by the necessity of providing some kind of education on this level, even though it is inadequate, in small communities and in sparsely settled territory, where financial resources to do better are not at hand. There are schools where the single-curriculum type is all that can be essayed, but there should be every effort toward consolidation and financial aid in order to keep them to a minimum number.

The pure multiple-curriculum type also has its limitations mainly because of its inflexibility. This deficiency chiefly

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accounts for the almost negligible proportion of schools operating this type. It is especially apparent where the four-year high school is concerned, since this institution is usually superimposed on an eight-year elementary school in which little or no effort is made to give the pupil a basis for intelligently selecting one from a number of fully prescribed and specialized curricula. The ineptitude is hardly less apparent where a two-year junior high school intervenes between the four-year high school and a six-year elementary school, since it was reported in Chapter VII that the junior high school including only the last two years of the elementary school represents much less of genuine modification than does the three-year unit. Where the guidance function is not performed in grades below the high school, special efforts must be made to avoid inflexibility in the high-school program of studies.

Elimination of the single-curriculum and the multiple-curriculum type as commendable organizations of the high-school offering brings the question down to the selection of either the constants-with-variables type or the combination type. The constants-with-variables program of studies, assuming an equally extended total offering in both, is the more flexible of the two. In its constants it can take care of the common needs of all, and in the variable portions the differentiated needs can be served, as well as such exploratory needs as are left untouched by the eight-year elementary school. Objections raised to it refer to the difficulty of administering it where a large offering and a large number of pupils are concerned. In these situations such a huge task of guidance is entailed, if curricular chaos is to be avoided, that high-school authorities have been prone to forsake this type in favor of the combination type. The combination type does reduce the burden of advice and guidance. It must be clear, however, that to serve pupils representing any wide variety of needs, a large number of curricula must be provided. In addition a majority of schools deem it desirable to include in the list a

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largely elective general curriculum designed to care for the needs of those not well served by the specialized curricula set up. For the pupils registered in it this general curriculum is virtually a constants-with-variables program of studies within the combination type, the burden of advice being in proportion to the number of pupils taking it. This number is often very large. Under these conditions the combination type operates in a manner similar to that of the constants-with-variables type in those schools referred to above in which certain "suggested" curricula are mapped out to facilitate the work of advice to pupils. Given an ample offering and as satisfactory a program of guidance as can be provided, the constants-with-variables type with suggested curricula, and the combination type with a broadly elective general curriculum to which the pupil might transfer from a specialized curriculum if the need arises, can be made almost equally serviceable.

II. CURRICULUM ORGANIZATION

Items in a curriculum policy. Whatever the type of program of studies operative in a given school, each pupil may be understood to be pursuing a curriculum in the sense in which the term was defined in the opening paragraph of this chapter as an "arrangement of courses or subjects taken by a pupil or a group of pupils during progress through a secondary school." It should require no argument to convince one that there are desirable and undesirable practices in making up curricula. It is the purpose here to list a number of items which may properly be included in a policy of curriculum organization. These items may be thought of as equally applicable, irrespective of the type of program of studies whether the curriculum is being planned for an individual pupil or for a group of pupils.

1. The most important of these items has to do with *recognizing the aims and functions of secondary education*. Some of

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these, such as the civic-social-moral aim, the health aim, in some respects the recreational aim, and the function of training in the fundamental processes, call for subjects which will be prescribed for all pupils and in which the content will be made as nearly common to all as possible. These subjects will be the *constants* of the program of studies. Certain other aims call for variation in the subjects taken; so with the occupational aim, in some respects the recreational aim, and the functions of democratization and recognition of individual differences. In the four-year high school, for reasons already given pertaining to the want of guidance in grades below, variation is also desirable for purposes of exploration, or "try-out."

2. Every curriculum mapped out *should be defensible from the standpoint of having some fairly well-defined and justifiable purpose*. Cox has put this item in the form of a "principle":

The total program of studies should be broken up into curricula, each with a definite aim toward goals that are socially desirable, and that offer completest self-expression to particular types of individuals.¹

Examination of the names of curricula sometimes outlined and of the miscellaneous character of the lists of courses and subjects sometimes taken by individual pupils during their progress through high school shows that this principle is often violated.

3. An important item in a complete policy of curriculum organization is, when put negatively, *not to prescribe for all pupils subjects and courses pertinent for some particular group of pupils*. This necessity is so obvious that it should not require statement were it not that it is so frequently disregarded. Perhaps the most frequent violation of this principle is that all or most curricula prescribe subjects pertinent for college preparation only. This is a questionable

¹ Philip W. L. Cox (2), p. 184.

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practice, since the chapter on aims and functions showed that the majority of high-school graduates do not go on to higher institutions. Especially is it questionable where it applies to pupils who cannot or should not continue to higher levels of training.

4. *Every curriculum should be so planned as to "assure some sequence and continuity in each student's work."*¹ High schools are sometimes properly criticized for turning out graduates who have had "a little of everything but not much of anything" during the four years of attendance; the school must avoid this danger. This item in the policy is related to the second item as stated above, but is not identical with it. It is often achieved by incorporating in the plan of administering the program of studies a requirement for the completion of "majors" and "minors," a major being a sequence of three or four units in one subject, and a minor a sequence of two units. For example, a certain high school administering a constants-with-variables program in which only four years of English and a year of "citizenship" are prescribed for all, requires that before graduation each pupil shall complete one major (in addition to English) of at least three units and two minors of at least two units each. For the sake of fostering democratization of secondary education there should be included with the subject groups in which majors or minors are acceptable such fields as manual arts, home economics, agriculture, and commercial work, where these are offered in sufficient amounts.

5. Any complete policy of curriculum organization, especially as it applies to four-year high schools (which we have chiefly in mind at this point), should include reference to the need of *maintaining something of flexibility in all curricula*. This is in effect the opposite of the fourth item, which calls for continuity and sequence, but it is not impossible to have regard for both. This item, or principle, should be observed not only on account of the need for exploration referred to

¹ (8), p. 19.

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in explaining the first item, but also for the sake of recognizing the special appeal to the student of some subject not called for in the curriculum prescriptions.

6. *Because the specific skills and abilities required in an occupation are weakened by disuse, courses and subjects imparting them should be placed as near the time of application as possible.* This means that they should be listed near the end of the curriculum. For example, shorthand and typewriting must not be listed in the early years only of a four-year curriculum in preparation for stenography. This violation of the principle is not nearly so common as that which places the training in supra-arithmetical mathematics required for college preparation (which we may regard as analogous to occupational preparation for those who do not go on to higher levels of training) in the early years of the high school. Disuse during two or three years must be an important factor in the lack of success of many college freshmen and sophomores who resume study in this field.

7. In mapping out curricula it is desirable to *avoid too wide a range of years in which a given course may be taken.* Examples in violation would be permitting juniors and seniors to enroll for courses in general science and community civics which are ordinarily taken by high-school freshmen. It is difficult, if not impossible, to teach a course enrolling pupils from as many as three or four high-school years without endangering standards of work for pupils in upper years or doing injustice to those in lower years.

8. Democratization requires that *some of the curricula offered should be adapted to pupils of average ability or of less than average ability.* This recommendation could not be expected to apply to curricula in preparation for higher institutions such as those referred to in discussing Table XLIV, but among the kinds there listed are several susceptible to this type of adaptation. Other means of fitting the offering to these pupils will be discussed at a later point in the chapter.

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The constant subjects of study. Because they should appear in all curricula, some interest should attach to a tentative list of constant subjects. The basis for determining these has for the most part been provided in the treatment of the subjects of study in Chapters XII and XIII. For the four-year high school, these subjects would be as follows:

1. *English* (four units). This would be in accordance with the recommendation of the National Joint Committee on English referred to in the treatment of this subject.

2. *Social studies* (four units). There is not complete agreement as to particular courses recommended to make up this four-year sequence, but one that is sometimes advocated is first year, community and vocational civics; second year, modern history; third year, American history; fourth year, problems of democracy (a composite course in economics, sociology, and political science or civics).

3. *Science* (two units). According to the Committee on Science of the Commission on the Reorganization of Secondary Education, these would be general science and general biology listed for the ninth and tenth grades.

4. *Mathematics*. According to the National Committee on Mathematical Requirements this would be general mathematics in the ninth grade. In view of the possibilities of enriching the content of mathematics in the seventh and eighth grades it was proposed in Chapter XII that either this subject be not made a requirement or, if such a requirement is set, pupils with special or general disabilities be exempted from it.

5. *Music and art*. In considering requirements in these fields in the four-year high school it should be remembered that contact with both is usually required throughout the eight-year elementary school. Native abilities vary so widely with respect to music that no *uniform* prescription, such as chorus singing, should be required of all pupils unless the content is adapted to training for appreciation as well as to the singing, more or less by rote, of standard songs. If

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prescription is to be made, it would seem preferable not to require the same work of all, but instead to allow an option of simple courses in appreciation, chorus singing, membership in some musical organization, applied music, and the like. Should upper-grade courses in art in a given school situation fall short of what can be done with children of those ages, there would be some ground for insisting on a constant in this field in some high-school year. Efforts should first be made, however, to improve the quality of the required work in art in elementary-school grades.

6. *Physical education.* Properly adapted forms of physical education emphasizing play and games should be required in all years of the high school. If credit is granted for this work, the total requirement for graduation should be increased by an amount equal to what is allowed for physical education. There is little or no occasion for having this subject displace any other in the normal schedule of four units.

If we include only the minimum amount of constant work as just proposed, there would be a total of ten units, exclusive of physical education, which leaves a margin of only six units in which to recognize all the other needs. This is more than many are disposed to concede to the common elements of the high-school program. It is much more than the average reported by Thomson for ninety high schools in the North-Central states. He found this average for 1923-1924 to be 6.6 units, although there were high schools prescribing little or no constant work, and others prescribing twelve units.¹ There appears, however, to be an increasing appreciation of the necessity of enlarging the scope of the constant portions.

If it is desired to propose constants for a six-year period of secondary education,—that is, including the seventh and eighth grades,—this can be done by considering what addi-

¹ Thomson, *The High-School Programs of Studies in Operation in Certain Cities of the North Central States*, p. 35. Master's thesis on file in the Graduate School of the University of Minnesota, 1923.

tions or shifts should be made because of this downward extension. The fields of instruction which should be represented in these constants in the seventh and eighth grades in the reorganized plan are English, the social studies, science, mathematics, industrial arts (for boys), home economics (for girls), music, art, and physical training. What should be done in each of these lines in junior-high-school grades has been suggested in dealing with them in the foregoing chapters.

The problem of curriculum specialization. It is beyond the province of a book not exclusively devoted to the secondary-school offering to attempt to set up all the specialized curricula demanded in the modern high school. We can only consider by way of *illustration* the problem school authorities encounter in endeavoring to map out curricula which will serve the purpose both of that education which is necessary for all (the constants are presumed to care for those) and of that which is to serve the special needs of pupils. Groups to be considered are those planning to enter commercial pursuits, general farming, and higher institutions on completing their four years of high-school work. Two-year curricula (which show some increase in frequency of appearance) and part-time coöperative curricula must here be left unconsidered. If the ten constant units proposed above are accepted, these groups have a leeway of six units to accomplish the specialization which is their goal, as well as to serve any other purposes, such as exploration or the indulgence of interests not represented in the constants or in the subjects of specialization. Those of the business group who plan to become stenographers — mostly girls — might have as prescriptions two or three units of shorthand and typewriting distributed through the last two or three years of the curriculum, and from two to four additional half-unit courses selected from business English, office practice, secretarial practice, commercial law, commercial arithmetic, elementary bookkeeping, etc. Those looking forward to business positions of respon-

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ability — more often boys — might be required to stress bookkeeping, industrial or commercial geography, commercial arithmetic, office practice, commercial law, business organization, advertising, and salesmanship. Some of these are subjects stressing business insights more than narrow clerical skills. Those planning to enter retail selling and store service — both boys and girls — would have as curriculum prescriptions subjects suited to their special needs, among them some of those already named. It should be possible to care for the occupational needs of each of these groups within the six-unit limit and still have a small margin for the other needs referred to.

The group planning to enter general farming would have as curriculum prescriptions courses such as field crops (1 unit), animal husbandry (1 unit), soils ($\frac{1}{2}$ unit), horticulture ($\frac{1}{2}$ unit), dairying ($\frac{1}{2}$ unit), poultry ($\frac{1}{2}$ unit), farm shop (1 unit), farm mechanics and farm management (1 unit) — not all of these, but perhaps as many as four units best designed to serve farming needs in a particular locality. A unit of chemistry or physics as a curriculum variable, together with a unit from some other field, would make up the total of sixteen units.

The last group of high-school pupils whose problem of curriculum specialization is to be considered are those planning to go to higher institutions. It is worth recalling again from Chapter IV that this group constitutes a declining proportion of high-school graduates and of all students in high schools. The high school even now, as measured by the proportion of its students not going on to higher schools, is predominantly a non-college-preparatory school. At present the problem of fitness for college work is (in addition to being influenced by volitional factors) both a question of general mental ability and a question of special preparation by having had in high school specified amounts of work in certain subjects. The relation of general mental ability to likelihood of success in higher education is touched on in the next chapter.

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The factor of special preparation is the only one to concern us here. As this, too, is largely a problem of what is demanded by the college, it is pertinent to cite certain data descriptive of entrance requirements in different sections of the country. An investigation by the writer¹ showed that the typical amount of mathematics required for admission to college

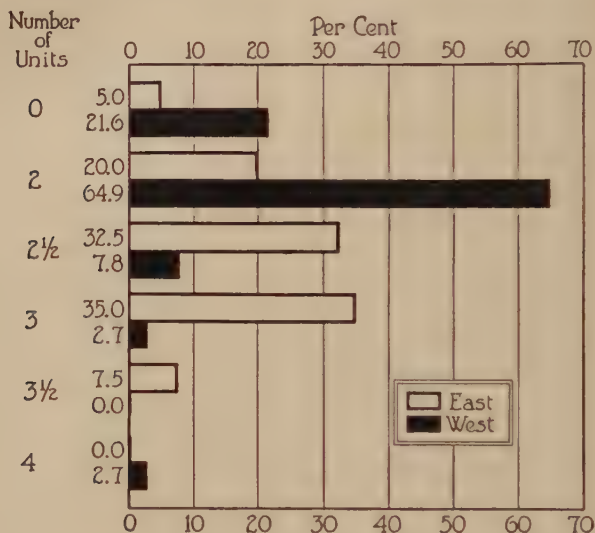


FIG. 64. Percentages of Eastern and Western colleges requiring certain numbers of units of mathematics for admission

and universities in Western and Pacific-coast states was two units, the next largest proportion setting up no requirement in this subject. A small percentage asked for two and a half units, and only an occasional institution insisted on more (see Fig. 64). Of colleges in New England and New York about a third asked for two and a half units, with a large proportion prescribing three or three and a half units.

¹ Koos (11).

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In foreign language the contrast of the two sections is even more striking (see Fig. 65). For the West the largest proportion of institutions (almost half) set up no entrance requirement in this field, and less than two fifths prescribed two

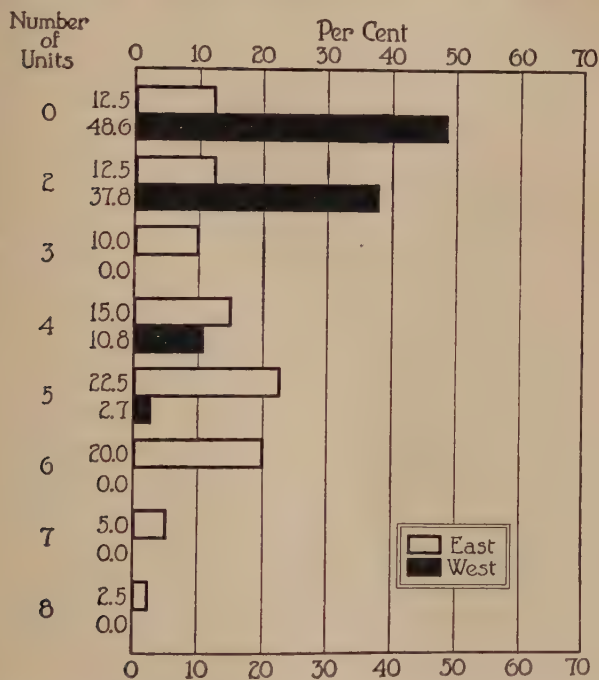


FIG. 65. Percentages of Eastern and Western colleges requiring certain numbers of units of foreign language for admission

units. This accounts for all but a small proportion of institutions. On the other hand, the most frequent requirements in the East were five and six units, and an exact half prescribed five or more. The remaining half were distributed in approximately equal proportions at no units, two units, three units, and four units.

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These two subject groups comprehend almost all the specific requirements other than English set up by higher institutions. When considered together the typical amounts for New England and New York exceeded six units — they were often as much as seven to nine units. In marked contrast, the totals for the two subjects in the West and Middle West were typically from two to four units. A study subsequently made by Fort for higher institutions in the Middle West showed a condition similar to that in the West.¹ Bearing in mind the fact that the tentative list of constants proposed for four-year high-school programs of studies included a minimum of ten units, we may conclude that high-school authorities in the West and Middle West would typically be able to maintain these constants, introduce the necessary prescriptions in college-entrance curricula, and still allow the pupil some latitude of election. To make it possible for the high-school pupil in the East to meet the typical requirements for college, the high school there would need to make inroads on the constants proposed. Nor is this all, since the investigations cited show that there is a remarkable difference between the proportions of higher institutions in New England and New York on the one hand and in the West and Middle West on the other which are ready to grant admission credit for certain newer courses, among them some in the tentative list of constants proposed. The conclusion is that the amount of specialization required to prepare for higher institutions is still often so extended as to prevent setting up constants in terms of the full scope of function of the modern high school and in terms of the needs of all pupils. Some specialization of curricula to prepare for the work in higher institutions is to be conceded; but it is impossible to justify devoting such large proportions of the full curriculum to it especially in view of the fact that what is prescribed is advocated on a conception of educational values now largely

¹ L. M. Fort (7).

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outworn. This being true, vigorous efforts must be continued, in sections where it exists, to batter down this great obstruction to an acceptable high-school program of studies.

Curricula in the small rural high school. The unsatisfactory character of the typical offering in rural high schools was a matter of discussion in Chapter VIII, where the problems of rural secondary education were considered. In extension of what was reported there it may be said that Ferriss found that in a total of 165 curricula in operation in rural and "semirural" high schools represented in his tabulations, 134 were "academic"; that is, bearing such designations as "general," "Latin," "classical," "academic," "college-preparatory," and "scientific." Only 31 were nonacademic; that is, commercial, home economics, agricultural, etc.¹ This emphasis is not of a sort to meet the needs of the major groups of pupils. The extracts made in Chapter VIII from Ferriss's recommendations emphasized the basis of selecting the constants for these rural and semirural high schools, which, he urges, should include English, community civics, general science, American history and government, economics and sociology, physical education and health, and extra-classroom activities. In this connection it is interesting to note the program of studies recommended in Minnesota for small high schools having three teachers exclusive of the "superintendent." Physical training, not listed, is required by law.

FIRST YEAR

Required: English I
General science
Elective (2 units)
General mathematics I (*or* elementary algebra)
Field crops
Farm shop *or* general industrial training I
Home economics I

SECOND YEAR

Required: English II
Modern history
General biology
Elective (1 unit)
General mathematics II (*or* plane geometry)
Animal husbandry
Home economics II
Foreign language I

¹ Ferriss (6), p. 53.

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THIRD YEAR

Required : English III
American history
Elective (2 units)
Physics *or* chemistry
Advanced dairying and rural social science
Home economics III
General mathematics II (*or* plane geometry)
Foreign language I
Foreign language II

FOURTH YEAR

Required : English IV
Introduction to social science
Elective (2 units)
Physics *or* chemistry
Advanced dairying and rural social science
Home economics III
Foreign language II

NOTE. If advanced algebra and solid geometry are offered, it will be necessary to sacrifice some other subjects in the program outlined.

This program of studies ¹ requires a few explanatory comments. The options of general mathematics I or elementary algebra in the first year and of general mathematics II or plane geometry in the second are options not for the pupil but for the school ; that is, the school will offer one or the other, not both. The University of Minnesota accepts general mathematics as meeting its requirement of two units in this field. The course in "introduction to social science" listed in the fourth year is a composite of economics, sociology, and political science or civics much like the courses bearing the name "problems of American democracy." The total number of different units of work listed is twenty-three, which is more than a staff of the size mentioned — the equivalent of no more than three and two-thirds full-time teachers — could teach in a single year. The bulletin in which this program is outlined urges that generous use be made of the device of alternation of subjects, by which, owing to small enrollments in many classes, certain subjects are taught only every other year. Concerning the merits of the program the bulletin has the following to say : ²

¹ Quoted from (8), p. 22.

² Ibid. p. 23.

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A careful examination of this suggested program of studies will show that the needs of several large groups of students will be well served by it, although not as well as where a larger staff is at hand. From it can be selected curricula suited to the needs of those who will enter farming pursuits, of those who will become home-makers without further training beyond the high school, of those who are seeking preparation for college, as well as of those who desire a general preparation without reference to some specific occupation.

For high schools with fewer than three teachers, exclusive of the superintendent, the task of mapping out a program is more difficult. Election of subjects must often be entirely eliminated, and this, of course, removes flexibility. The subjects suggested above as constants should still be included. The chief problem is that of adding to the constants, for the purpose of making up the total of sixteen units, such courses as will come nearest to serving the needs of all pupils.

III. PROGRAMS OF STUDIES IN JUNIOR AND SENIOR HIGH SCHOOLS

Types of programs of studies in junior high schools. Consideration of the program of studies in this chapter has thus far been largely restricted to the four-year high school. The constants in the six-year period of secondary education have, however, been briefly suggested. Moreover, the program of studies was accorded brief general treatment in Chapter VII while trends of reorganization were being summarized. When one examines the programs of studies being used in junior high schools he finds that the same types appear as were reported above in four-year high schools. There are single-curriculum, "pure" multiple-curriculum, constants-with-variables, and combination types. A chief difference in combination programs as they appear in four-year and junior high schools is that they are found in greater variety in junior high schools. One encounters not only the combination of multiple-curriculum and constants-with-variables types, but

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also combinations of the single-curriculum and pure multiple-curriculum types, and of the single-curriculum type and the combination type as the latter appears in four-year high schools. This comes from having a single curriculum, or something akin to it, during the seventh grade or the first half of this grade and following this with a multiple-curriculum or combination organization. Other combinations of the types are also to be found.

It requires no extended inquiry to demonstrate that the single-curriculum type of program of studies is inadequate to the special purposes of the junior high school as these were presented in Chapter VII, among them the recognition of individual differences and exploration and guidance. The multiple-curriculum program of the pure type is somewhat better suited to junior-high-school needs, but it falls short by incorrectly assuming that by the time the pupil enters on the work of a curriculum he has already decided on his line of occupational specialization. This is contrary to a basic assumption in the junior high school, that the pupil is here to be helped to *select* a specialty rather than to *train for one*. The constants-with-variables type of program can be organized in harmony with this basic assumption. Some of the combination types are also in harmony with it, especially when they allow freedom of election, beginning this opportunity for partial variation in subjects taken not later than the opening of the eighth grade and preferably in the seventh grade. Where adequate assistance for guidance can be assured — which should always be characteristic of junior high schools — the constants-with-variables program seems best. Large junior high schools, however, deem it expedient to operate the combination type. The curricula most frequently found in junior-high-school programs which follow the combination type are, as stated in Chapter VII, the academic, the general, the commercial, the industrial, and the curricula in practical arts and home economics.

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The prescribed and variable portions of the junior-high-school program. The subjects suitable for universal prescriptions in a three-year junior high school may be inferred from what was suggested above as constants in the six-year secondary-school period. An acceptable list with minimum numbers of years might be English, three years; social studies, three years; mathematics, two or three years; science (including hygiene), two years; industrial arts (for boys) and home economics (for girls), one or two years; music and other arts, one or two years; physical training, three years. The amounts suggested are not to be thought of as units in the sense in which this word is applied in four-year high schools. It is regarded as desirable to have the proportion of the total time allotted to constants decrease from the seventh grade upward, the variable portions increasing accordingly. It has already been reported that the subjects most often listed as variables or electives are the foreign languages, additional work in the practical and fine arts, and certain commercial subjects. Others are also sometimes listed in these nonconstant portions.

In one junior-high-school program which may be cited by way of illustration the required subjects for the three years are as here given :

Seventh grade: English, 6 periods; social studies, 4; mathematics, 4; industrial arts (boys) and home economics (girls), 4; music, 2; art, 2; physical training, 3. (Total in required courses, 25 periods.)

Eighth grade: English, 6; social studies, 4; mathematics, 4; general science, 4; physical training, 2. (Total in required courses, 20 periods.)

Ninth grade: English, 5; social studies, 3; mathematics, 5; physical training, 2. (Total in required courses, 15 periods.)

The subjects listed for the seventh grade from which the pupil selects enough to make a total of thirty periods are Latin, French, Spanish, printing, commercial, agriculture,

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other industrial arts, and home economics. To these are added, for the eighth grade, music, art, mechanical drawing, business methods, and typewriting, and for the ninth grade additional courses in industrial and home arts, business, and science. This may be recognized as a constants-with-variables program of studies. The variable offering is of such a nature, however, that it would lend itself to the combination type if this were deemed preferable. Certainly the materials of general, academic, industrial, home-economics, and commercial curricula are discernible.

The junior high school and specialization. In the brief canvass of the peculiar functions of the junior high school in Chapter VII the stand was taken that only in those situations where numbers of over-age pupils and others will drop out of school early should opportunities for specialized training be provided. With such exceptions the junior high school is a place not of specialization but of general education and of encouraging inquiry into appropriate lines of specialization. Thus, the variable subjects in the junior-high-school program are usually to be introduced for their guidance and general educational value rather than for specific training for specific vocations. By the same token, since preparation for college may be looked upon in a sense as occupational specialization, the junior high school should have no concern with it. This is becoming increasingly evident to those who are responsible for junior-high-school reorganization, and efforts are now being made in several sections of the country to secure a reformulation of entrance requirements so that the work in these three grades may be administered without regard to them.

The senior-high-school program of studies. Most of what has been said concerning the program of studies in the four-year high school is applicable to that of the senior high school including only the tenth, eleventh, and twelfth grades. This is true for the items in the policy of curriculum organization

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presented earlier in the chapter. Although certain of these items are not so significant for the junior high school, most of them apply with equal force and a few with even more force to the senior unit. The only possible exception is the principle demanding flexibility. Some flexibility of curricula there must be, but with the additional year (the ninth grade) and all the advantages of a junior high school for tryout, flexibility is not quite so essential as in the four-year unit. One may also conclude from this line of thought that the combination type of program will be more appropriate to the senior high school than to the four-year high school.

IV. ADAPTATIONS TO DIFFERENCES IN ABILITY

The problem. A final problem related in vital ways to the organization of curricula and programs of studies is that of adapting them to the abilities of pupils who are or should be in attendance. The influx into secondary schools in recent years of larger proportions of the population is usually understood, as was seen in Chapters I and III, to be bringing with it more of those of average and of less-than-average mentality. This influx is in accord with the desires for a democratized secondary school posited by those whose concepts of the purposes of education on this level were summarized in Chapter IV and used as a basis for the formulation of aims and functions accepted in this volume. But the influx involves the serious acceptance of the responsibilities represented, these being the better adaptation of the work of the school to the widening distribution of mentalities represented. On one hand it calls for adaptation of the offering to those of less ability who in former years did not as often attend. One writer has emphasized the needs of the less-than-average pupils as follows:¹

¹ Margaret M. Alltucker (16), pp. 660-661.

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While it is highly important that counselors and teachers should recognize the fact that limited pupils do not have the ability to do successfully the work of the standard secondary-school curriculum, it is equally important that they remember that the limited high-school pupil *has some ability*; it is their privilege to coöperate with him in *developing the ability which he has*. . . . Too often the only thing the limited pupil gets from the high school is a sense of failure.

But this responsibility of adapting education to the widening range of abilities also extends in the opposite direction, that is, toward keeping the better-than-average pupil working at his full level of ability. The conviction is abroad that the efforts to popularize secondary education have sometimes operated to secure mediocre performance on the part of the superior pupils. The needs of the individual and, even more, the needs of our society for the special services renderable by the highly endowed, require that curricula and programs be readapted to these. It is the purpose of this section to review briefly such efforts as are being made to meet this whole large problem of adaptation for the entire range of ability that should be represented in the new secondary school.

Some of the means of adaptation being used. One investigator reports the frequency with which certain kinds of provisions have been introduced into high-school organization and administration.¹ Although not all the provisions are directly related to the organization of curricula and programs of studies, which is the chief concern in this chapter, most of them will be mentioned. The first provision in the list is (1) *grouping pupils according to ability*. This is now so often advocated that it is given more extended consideration below. A number of schools reported the introduction of (2) *supervised study* for the purpose of caring better for differences in ability. Another means reported is (3) *allowing the superior pupil to carry additional courses*, which directs attention to

¹ W. H. Hughes (29).

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the opposite practice, sometimes followed, of allowing the less-than-average pupil to carry less than the normal load of four units. A method of stimulating pupils who are capable of it to superior performance is the (4) *honor organization*, in which such attainments receive social recognition. The same investigation reports also on the frequency — not large — with which high schools have introduced systems of (5) *varying credit according to individual achievement*. An example of this is a high school in which pupils earning A, the highest mark, for the work in a course are given 1.2 units of credit; those earning B, 1.1 units; those earning C, 1 unit; those receiving D, the lowest passing grade, 0.9 unit. This type of adaptation had some small following a few years ago, but has recently gained little in favor, if at all.

Most of the types of adjustment so far referred to should be adaptable (even though this is not always done) both to less-than-average pupils and to superior pupils. This is true for grouping according to ability, for supervised study, and for adjusting the number of units taken to the differing capacities. This would not be as true for stimulation through honor organizations or varying credit according to achievement, which are better suited to pupils above average in ability. Three further types of adjustment adaptable to pupils of the full range of ability, which are sometimes advocated and used, will be referred to before returning to the consideration of homogeneous grouping. These are (6) *mapping out curricula better suited to the different abilities represented*, (7) the introduction of some type of *unit organization within courses*, permitting pupils to progress at varying rates in accomplishing the units, and (8) the adoption of what is referred to as the *Dalton plan*, in which organization of courses into units is one element.

Possibilities for the first of these — mapping out curricula within the program of studies — are at least implicit even if not expressed, in the treatment of the kinds of curricula listed

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by a large number of high schools as reported earlier in the chapter. They are suggested also in data presented by Keener in reporting the mental ages of pupils in Chicago high schools enrolled in certain curricula (see Fig. 66). Although the distributions of mental ages of pupils entering the six curricula represented in the study overlap, it is clear that, even without adequate provision for guidance, there is a marked

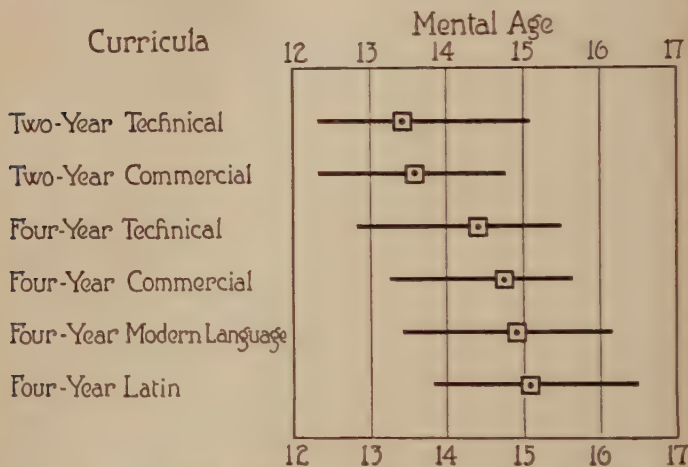


FIG. 66. Median mental ages and range of middle fifty per cent of mental ages of pupils selecting certain curricula in Chicago high schools (Keener (31), p. 120)

tendency for pupils to be distributed to different curricula according to ability. This tendency may well be utilized, and effort be consciously directed toward mapping out curricula in accord with the needs represented and toward guiding pupils into them.

The organization of the content of courses into units and administering these units in such a way as to permit pupils to complete them at different rates has not had so much vogue in high-school grades as in elementary-school grades. Al-

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though it is sometimes questioned whether secondary-school courses will lend themselves to this organization as readily as those of the lower school, there can be no doubt that the plan is much more widely applicable than the present extent of its use implies. The increasing introduction of directed, or supervised, study should accelerate its extension.

The Dalton plan is advocated on much broader grounds than that of its adaptation to differences in ability among high-school pupils, but the fact that it bears important relationships to such adaptation is the reason for referring to it here. This plan comprehends certain "conspicuous features"; namely, (1) monthly assignment, (2) freedom of study, (3) freedom of progress, (4) individual instruction, and (5) group creativeness.¹ It is operated on three "fundamental principles": (1) freedom; (2) coöperation and interaction of group life, or community living; (3) the proportion of effort to attainment, or budgeting time.² The monthly assignment in a given subject is divided into twenty units by the teacher in charge. Pupils do the work on the units in laboratories, or subject workshops, of which there is one for each subject, presided over by a teacher-specialist who renders instructional service. There are group meetings, and pupils may work in groups in the laboratories, but they are allowed great freedom in budgeting their laboratory time if only they carry forward the month's assignments in all subjects taken. Time gained by rapid progress in one subject is thus utilizable for another subject which the pupil finds more difficult. Other features of the plan might well be dealt with if a complete description were contemplated, but enough has been said to indicate its relationship to the matter under consideration — adaptation to differences in ability.

The advocates of the Dalton plan urge that it be not confused with the curriculum.³ They appear to regard it as an

¹ E. D. Jackman (30), p. 688.

³ Ibid, p. 85.

² Helen Parkhurst (36), p. 84.

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improved approach in administering a curriculum in operation. In this respect it is among those modifications to adapt the work of the schools to the needs of the widened differences in ability which affect only indirectly, if at all, the problem of organizing curricula and programs of studies. The more important means of adaptation which more directly affect this problem are varying the number of units taken by pupils, mapping out curricula somewhat in terms of the abilities represented, and the homogeneous grouping of pupils now to be discussed.

Securing homogeneity in grouping by ability. Homogeneous grouping by ability is often advocated as a substantial aid to secondary schools which are endeavoring to adapt their training properly to the increasingly wide variation of capacities. Although the merit of such grouping is still sometimes debated, this advocacy has resulted in the adoption of the practice of homogeneous grouping in many schools large enough to warrant it. Junior high schools have followed the practice more often than have four-year and senior high schools. Because the basic assumption of the plan (as may be seen in the name often applied to it) is homogeneity of the groups, a good deal of effort has been expended in endeavors to devise proper methods of grouping. There is a good deal of diversity of practice and opinion in this regard. Some make the groupings on school marks assigned to the pupils in preceding grades; some, on these marks combined with teachers' judgments; some, on scores earned in tests of ability in school subjects; others, on intelligence-test scores; and still others use two or more of these in combination. Fortunately a number of investigations have been made affording partial evaluations of these, both singly and in combination. One of the best has been reported by Brooks,¹ who had complete records, along the many lines evaluated, on ninety-three pupils in the seventh grade. His purpose was to find a basis of grouping

¹ Fowler D. Brooks (21).

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that would not be too unwieldy for practical use ; that is, one which would not involve an impossible amount of testing and other work, and would at the same time afford a dependable basis of grouping. Brooks's criterion of scholastic success — an important consideration in such an attempt at evaluation — was (1) the average of seventh-grade marks in English, mathematics, history, and geography given to pupils in fairly homogeneous groups by teachers using the same standards in marking different sections, and (2) the educational ages from the Stanford achievement tests, which he regarded as the best battery of achievement tests available. He weighted the average marks 2 and the educational ages 1. He divided the pupils into three sections on this criterion and then inquired to what extent each of a number of bases of sectioning would displace the pupils from the sections in which they were thus placed. The trial bases used included nine group intelligence tests (I. Q.'s in all but a single test) ; the mean of the group intelligence tests ; five achievement tests, including reading, arithmetic, and vocabulary tests ; the mean of the achievement tests ; the Stanford-Binet Test (I. Q.) ; chronological age ; sixth-grade marks ; and the combination of sixth-grade marks and the Haggerty Intelligence Test, delta 2 (I. Q.).

The best basis of sectioning found was the one last named, the combination of sixth-grade marks and the Haggerty Intelligence Test. On this basis only one pupil of the total of ninety-three was displaced by two sections ; that is, should according to the criterion have been placed in the group at the other end of the distribution. About a fourth of the pupils were displaced one section from that to which they were assigned by the criterion ; that is, these were one section above or below where the criterion located them. Displacement by a single section in a three-section grouping is not regarded as serious. Thus almost three fourths were correctly sectioned on this combination basis. It is interesting to note that the best *single* basis was the sixth-grade marks, which

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showed two-section displacements for two pupils (2.2 per cent) only, and one-section displacements for 34.4 per cent. This finding is contrary to the customary opinion of the relative merit of marks as a basis of sectioning. It is also worthy of mention that sectioning by chronological age (on the assumption that the oldest pupils are to be assigned to the lowest section and the youngest to the highest section) would have shown two-section displacement for only 7.5 per cent, and one-section displacement for 40.9 per cent. After urging further investigation of the problem Brooks concludes the report of his investigation as follows :¹

Combining the results of a group intelligence test with sixth-grade marks, and taking into consideration chronological age, we have a fairly accurate basis for sectioning entering junior-high-school pupils, a basis more accurate than any one of the three elements of which it is composed. Undoubtedly other factors are present, but they have not been adequately analyzed or estimated. Certain volitional, emotional, or interest factors may eventually be found to add much to a composite prognosis measure. Absolutely perfect predictive measures may never be found, just because growth or development may of itself introduce a certain amount of change or variation which will continue to elude accurate estimate.

It is not difficult to imagine situations in which dependence on marks given in preceding grades would be less helpful in effecting homogeneous grouping than here shown. This would be where, as sometimes happens, the pupils come from two or more elementary schools differing widely in their standards of work and therefore in their standards of marking.

If grouping is to be made for a single subject only, rather than for a number of subjects, as may happen on the high-school level, the basis should probably include more recognition of ability shown in preceding divisions in the same subject or field.

¹ Brooks (21), pp. 368-369.

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Evaluation of grouping by ability. A great deal has been said on behalf of placing pupils in ability groups for purposes of instruction, not only by those who have viewed it as theoretically desirable but, of late years, by those who have had the opportunity of giving it experiential evaluation. It is believed that it accomplishes the purpose for which it is introduced and therefore (which is the occasion for considering it here) the better adaptation of the schools to the needs of the pupils enrolled. The advocates speak of better educational results for those of all degrees of ability, arising out of better adjustment of methods and materials of instruction to the narrower range of abilities represented within each group. Some writers are more guarded in their statements, claiming only that it makes this adjustment possible, without insuring it. A type of statement often made is to the effect that it reestablishes the conditions making for emulation within the class group, these being largely removed by the wider range of abilities in mixed groups. Superior pupils, it is said, are stimulated by being in groups of those similarly equipped, and those of less ability are not discouraged by being hopelessly outstripped by superior pupils. The less capable are given a helpful sense of success essential to mental hygiene and conducive to a longer stay in school than would otherwise be the case. Among supplementary advantages are an improved social homogeneity, achieved by the greater degree of community of interest and by that nearness of age of the groups which is to some extent an accompaniment of such grouping, and the removal of many disciplinary problems by keeping superior pupils busier in competition with their intellectual peers and by relieving the less capable over-age pupil from that discontent with the school situation which is so often manifested in his untoward behavior in mixed classes. While unequivocal evidence experimentally derived is not often proffered in support, teachers in schools where the practice is followed have been almost unanimous in commending it.

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Objections raised to grouping by ability refer to the danger of developing snobbery by pupils in superior groups, the difficulty of securing understanding and appreciation of the plan on the part of parents, the marked preferences of teachers to be assigned to superior and not less-than-average groups, the want of an understanding of what the differences in methods and content for groups of different ability should be, and the problem of finding an appropriate basis for assigning marks to the different groups. The friends of the plan answer that such objections as the first and the second can be removed by following proper policies in dealing with pupils and parents, and that such obstacles to satisfactory operation of the plan as are represented in the remainder will be surmounted as we have experience with it.

Procedures in differentiation in grouping by ability. Judging from the diversity of opinion and practice the question is still unsettled whether, when grouping by ability has been introduced, differentiation should be by rate of progress through the school or by enrichment of content with a normal rate of progress. An example of the former procedure is that found in the junior high schools of New York City. Data have been reported which show that by following the plan of having "rapid progress," "normal progress," and "slow progress" classes, 43 per cent of pupils who had completed the ninth grade in June, 1922, had gained one year since entering the seventh grade, and 17 per cent had gained a half year.¹ It is significant to note that three fifths of all pupils progressed at a rate much faster than normal. The opponents of this as the sole method of differentiation point out that there is a serious fallacy in a procedure which secures *much more* rapid average progress than the one grade a year, the natural assumption on which our system of school grades is organized. Some would go so far as to have only enrichment, seldom if ever resorting to acceleration. There appears to be

¹ Gustave Straubenmueller and Others (43), p. 80.

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no valid reason why a combination of the two types is not acceptable, with both accelerated progress and enrichment for superior or very superior pupils only, and with normal progress and differentiated content for other groups. We shall, however, need more experience and more study of the plans before deciding what arrangement is best. Probably most schools will begin by attempting to differentiate content and method for the different ability groups, subsequently introducing any differentiation in rate of progress through the system.

The following generalizations, from experience in attempts thus to differentiate instruction in one school system in which pupils were distributed to three groups, merit quotation here:¹

The bright groups need less drill. They are more easily interested. General directions, general questions, the statement of general principles can and should be used. They have the initiative usually to work out details. Supervised study should take the form of directing them in wider study. They can do abstract thinking, when necessary, in terms of formulas, symbols, etc. They can conduct their own class procedures and often do it exceptionally well. They usually have responsibility, initiative, and pride in attainment. The mode of authority need never be resorted to in class control. They like to participate in the problem of school government. There are some who have a tendency to rely upon their ability to bluff. The right kind of teaching corrects that tendency. While the so-called skills or formal aspect of a subject are more easily learned, and should be better learned by them than by the other groups, the intensification and extension of their courses should be not in the skills but rather in the appreciative, interpretative, and abstract phases of their subjects. They should get training in leadership. I do not think that as yet we know just how to make their accomplishment quotient equal to one. In spite of better work and more work they do not seem to be working up to capacity.

The C groups are perfectly normal appearing groups if correctly handled so far as control is concerned. Their attention span is shorter and they need more stimulation to be kept on their tip

¹ Wesley E. Peik (37), pp. 30-31.

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toes. With some teachers disciplinary problems develop easily and with others they practically never appear. Instruction has to be definite, concrete, carefully graded, presented step by step, and frequently reviewed. They need at least twice as much drill as the A group. They do best in the formal aspects of subjects. They are slow to grasp new situations and new problems. More patience is needed on the part of the teacher. They do best with supervised study. There should be much emphasis upon diagnostic and remedial procedures. They can be motivated, but it takes a person of special appeal to them to do so. Many of them lack the poise one finds in A groups. There is more awkwardness and social under-development. When their work is skillfully taught and kept within their range of accomplishment, their recitations are frequently most interesting. Almost anything in the line of socialized recitations, projects, participation in class conduct, etc., can be attempted with them, but they need more concrete guidance. Much emphasis should be given to right standards of social conduct. They forget easily and habituation is a slower process. Instruction should be kept down to the minimum essentials of their subject; but it is a mistake not to provide much material in their work that appeals to their interests. . . .

Grouping by ability and the program of studies. Even though grouping by ability is desirable, it is not always practicable. It is obviously precluded in schools in which not enough pupils in any grade or subject are at hand to warrant the provision of two or more sections which may be differentiated on this basis. All schools with small enrollments will find it impracticable and will need to utilize other means of differentiation. The extent to which it may be introduced is also somewhat dependent on the proportion of the pupils' courses which they have in common: the smaller the proportion of constant subjects and the greater the diversity of pupils' programs, the more nearly impossible is homogeneous grouping. Factors like these have much to do with the larger extent of introduction of the practice in elementary schools than in high schools, or in junior high schools than in senior high schools. The feasibility of homogeneous grouping may thus be seen to

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be significantly involved in the type and organization of the program of studies. This is in a sense an additional consideration in support of such a large list of constants as was proposed above for the four-year and the six-year secondary-school period. It would, however, be easy to overstress this argument, since this would result in a program so largely prescribed as to preclude the recognition of differences in other ways.

QUESTIONS AND PROBLEMS

1. Secure copies of the programs of studies in operation in a small four-year high school and in a large one, note the types under which they are classifiable, and apply to them any criteria expressed or implied in this chapter.

2. Obtain a copy of a program of studies of the pure multiple-curriculum type or of the combination type and scrutinize each curriculum in the light of the items in a policy of curriculum organization as suggested above.

3. Plan two-year curricula in preparation for home-making, clerical work, farming, and automobile mechanics.

4. Evaluate a junior-high-school program of studies in the light of the special purposes and needs of this unit as presented and considered in Chapter VII and in this chapter.

5. Inquire into college-entrance requirements of individual colleges in your region. How do they affect the problem of setting up a desirable list of constants?

6. Compare the curriculum of the typical high school, as to organization and content, with that of the German *Gymnasium* and the French *lycée*.

7. Is there any danger that in adapting high-school work to pupils of average or less-than-average mentality we shall fail to secure the full level of performance by the superior pupil? What may be done to offset any influence of this sort?

8. What means for recognizing individual differences does the school of one thousand have at hand that the school of fifty pupils may not have?

9. In grouping pupils by ability need sex differences be given consideration?

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XV

EDUCATIONAL AND VOCATIONAL GUIDANCE

I. THE DEMAND AND NEED FOR GUIDANCE

The testimony of aims and functions. If we may judge by the aims and functions proposed for the modern secondary school, as drawn from the analysis of published statements in Chapter IV, it is inevitably headed toward a program of educational and vocational guidance. This is clearly shown in the proportion of writers who posited *exploration and guidance*, since more than half were found to advocate more or less vigorously the performance of this function. It is also manifest by implication in certain other aims and functions, such as *occupational efficiency* (inclusive of *college preparation*), *achieving a democratic secondary education*, and *recognizing individual differences*.

The proposal to train for occupational efficiency both reflects and anticipates an expansion of the offering to include the recognition of an increasingly widening range of occupations. Some of this expansion is illustrated in Chapter IX. Any school system which is committed to training for vocation must at the same time, by corollary, take on the function of guidance, since proper distribution of students to the several lines of training cannot be accomplished without it. This intimate dependence of vocational training on guidance has without doubt had something to do in recent years with the demand for both and the development of both not only in individual systems but in the country at large.

The diversity of requirements for admission to colleges and other higher institutions, complicated as it is by differing

requirements of the different professions for which such institutions now afford training, may be regarded as a constituent of this need for guidance. This is because, to some extent at least, during the time which the high-school pupil not going to college uses for vocational courses the pupil who is going on to higher levels of training will be taking work more significant for those levels. The problem of preparation for college in its curricular phase was considered in the foregoing chapter.

How the purpose to achieve a democratic secondary education and to recognize individual differences enjoins the establishment of a program of educational and vocational guidance upon those responsible for our secondary schools may in part be appreciated by referring again to the evidences of popularization of education on this level already presented in Chapter I. An additional illustration of the influx of pupils into the upper, or secondary-school, grades in individual systems of the country is provided by data pertaining to Cleveland, Ohio (see Fig. 67). The average percentage of increase in enrollment in elementary grades over the half-decade from 1919 to 1924 was 14.3. This is probably not far from the percentage by which the total population increased during the same period. But during the same interval of years the percentages of increase for each of the remaining grades were VII, 25.6; VIII, 49.5; IX, 90.3; X, 119.4; XI, 90.4; XII, 102.5. The widespread conviction that such influxes could not come without spreading the range of capacities and interests to be found in the grades concerned has more than once been referred to in foregoing chapters. Certainly, in such a situation, if genuine democratization is to be achieved and the differences represented are to be recognized, there must be supplied an adequate accompaniment of guidance, educational, vocational, and other.

Further evidences of the need. Among additional factors of the need of putting into effect a program of guidance is the

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multiplication of occupations which has appeared as an accompaniment of our complex modern life. The industrial development of the past century, invention, and the extension of the bounds of applicable knowledge through research in science have called for specialization after specialization. In a time when life was simple, occupations few, and educational

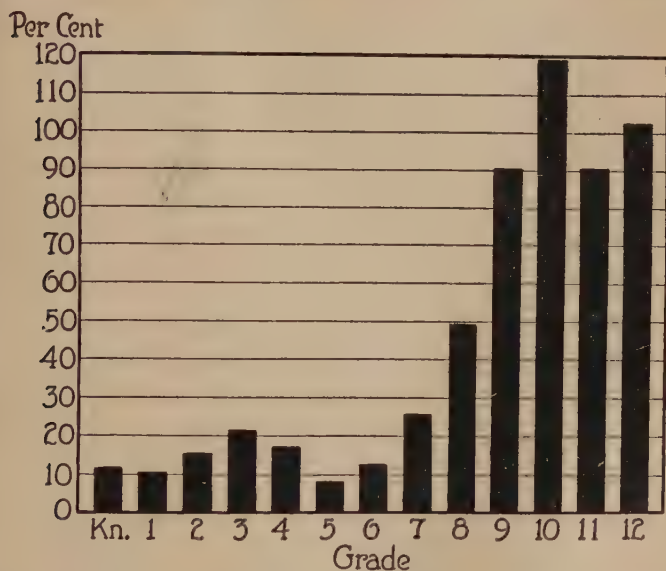


FIG. 67. Percentages of increase in enrollment in each grade of the Cleveland, Ohio, schools during five years from June, 1919, to June, 1924

opportunities equally meager, there could have been no insistent call for systematic help in selecting a life work or in planning a course of training in preparation for it, but the requirements of the modern situation make such provision imperative.

If this need could be demonstrated in no other way, its existence has ample support in the financial success of illegitimate attempts at guidance. There are many examples of

those who, equipped with little knowledge and much ignorant assurance, are exploiting the common desire to enter upon some pursuit with confidence of ultimate success in it. The demand and need are too generally prevalent to continue to be served by the illegitimate attempts of those whose aims are largely mercenary.

Early efforts at guidance discredited. The earlier attempts at guidance tended to discredit the movement. It may now be seen that this disillusionment was inevitable in view of the high hopes entertained for guidance and the meager array of information available. The dramatic possibilities of guidance appealed vividly to the imagination, not only of the public but of school people as well. The special knowledge necessary could not offhand be multiplied fast enough to avoid deflation of these hopes. It will be difficult to reestablish confidence in this important movement on the part of many who were thus oversanguine in its earlier stages.

It is worth pointing out that the movement for guidance is not the only one in the field of education which has first fired the imagination with its possibilities and then undergone a partial collapse of enthusiasm. The experience of the movement for socialization of classroom procedure — the "socialized recitation" — has been similar. That we should have an instructional procedure which more nearly resembles the conditions of social coöperation outside the school is obvious, and as soon as the idea had once been suggested, it caught the imagination of teachers and school administrators. But in the passage of time it became apparent that genuine socialization was not to be achieved by the first few gestures made after its desirability had been conceded. Again, there are probably few educational workers, if any, who continue to look on manual training as the way out toward genuine vocational training, although it was so regarded when it was first introduced. We now know that we cannot arrive at vocationalization by any such short cut. It dawns on us that

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improvement of instructional procedure and vocationalization of curricula are to be achieved only after much painstaking research and experimentation, but that, at the same time, this obstacle cannot detract from their inevitability. The same can be said for movements other than those mentioned; in fact, for most of the progressive movements in all spheres of life. It should not be surprising, therefore, that the beginning of the work of guidance was followed by a reaction. But because of the necessity of performing the function, this discouragement must and will similarly be succeeded by a period of patient and constructive research and experimentation to provide the firm and permanent establishment of the work.

The concept of guidance. The phases of guidance to be considered in this chapter, as may be inferred from what has so far been said concerning it, pertain only to curriculum and vocation, the scope of "educational and vocational guidance" in its older sense. In recent years the concept of guidance has been extended to comprehend other phases, such as health, recreational, social, and moral guidance. There is some ground for the criticism that for some of those who are concerned with schools the concepts of "education" and "guidance" are almost synonymous. There is, of course, justification for the desire to have education permeated by the guidance concept; its influence on the educative process can be nothing short of wholesome. This is especially pertinent in matters social and recreational, whether they lie within the curriculum or without. But there is danger that with the concept thus broadened we shall lose sight of guidance concerning curriculum and vocation in the older and more specific sense. In the following treatment of the means of guidance the concept dominant is this more restricted one. It will be left for the next chapter to deal, in part directly and in part by implication, with social and recreational guidance in its broadened interpretation.

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II. THE MEANS OF EDUCATIONAL AND VOCATIONAL GUIDANCE

The organization of secondary education in its relation to guidance. Several of the means of guidance now to be touched upon have already been referred to in foregoing chapters as available for this purpose. This statement is applicable to the first five at least; the organization of secondary schools, the flexibility of the curriculum, the arrangement of vocational content within curricula, the course in "vocational civics," and exploratory, or "try-out," courses. At the risk of repetition these will be briefly reviewed again before taking up for consideration the remaining agencies of guidance.

That the traditional organization of the public-school system, which assigns eight years to the elementary school and four to the high school, is unfitted for the purposes of guidance was emphasized in Chapter VII in dealing with the junior high school and the junior college. It is desirable that the period of secondary education should more nearly coincide with the period of guidance, which begins not later than the opening of the seventh grade. As was pointed out, one reason for the slow development in this field is that the period of guidance has been distributed to three different units, working to some extent at cross-purposes with each other.

A further reason, pointed out in Chapter IV, is that in that unit of these three in which there has been the most development, that is, the four-year high school, we have been too often attempting the impossible by endeavoring to accomplish for the individual pupil both guidance and specialization within the same brief four-year period. For the individual pupil specialization must be *preceded* by guidance. It may thus be seen how naturally, although the senior high school will have important responsibilities in guidance, and although there will be a further distribution to specializations in institutions above the secondary level, the junior high school must come to bear the major portion of the burden of guidance.

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A flexible curriculum organization. A second means referred to in Chapter XIV that is in the nature of an adjustment to facilitate guidance, is that of a curriculum organization flexible enough to allow for a good deal in the way of exploration by the pupil. Some portion of each curriculum, if this is at all possible, should be left unprescribed for the pupil to fill out by selection of his own under guidance by school and home. This is peculiarly essential in the four-year high school following the eight-year period of elementary education and in the junior high school, but it is also desirable in the senior high school. As has just been stated, to the conventional high school falls the double task of affording for the individual pupil within the four-year period opportunities both for guidance and for specialization. With curricula fully or almost fully prescribed, guidance is discouraged or precluded. For the junior-high-school pupil there should be some latitude of election under guidance as early as the opening of the eighth grade or earlier. Even in the senior high school, with the best possible performance of distributive functions in the junior-high-school period, many pupils will be undecided as to occupational plans or plans for further education, and some freedom of election will encourage a spread of contacts that will be helpful to ultimate decision. However, in this unit opportunity for election within a curriculum cannot well be so wide as to defeat the purposes of specialization at a time when this is seen to be essential.

Arrangement of vocational content within curricula. It is possible also, to some extent, to distribute the specific vocational and other content in vocational curricula in ways that will facilitate the performance of the guidance function (see Chapter IX). Such portions of these curricula as are pertinent primarily to nonvocational purposes — those which contribute to "general" training — may well come as early in the curriculum as possible. The distribution of the vocational constituent with the same aim of enhancing the oppor-

tunities of guidance is encouraged by dividing it in our thinking and practice as far as possible into three main elements: (1) that portion which is directly concerned with imparting the specific skills essential to success in an occupation — for example, skills in typing and shorthand; (2) the related science, mathematics, etc., as commercial arithmetic; (3) such socializing information, understanding, and point of view as are peculiarly valuable for the occupational group represented — for example, the knowledge of commercial geography and business organization. For purposes of guidance it is desirable to place the first constituent as near the end of the curriculum as possible, letting the others to a large extent come earlier, and (when possible) the third before the second. In this arrangement the elements more widely applicable come first, allowing for some postponement of decision on the specialty within the larger group of occupations or some latitude of rechoice of occupation with a minimum of loss of time. The arrangement also fosters efficiency in occupational preparation in that it provides the needed specific skills just before employment begins, obviating that loss of these skills which is inevitable without continuity of use.

The survey of occupations. The three means so far listed and described are in the nature of adaptations of school and curriculum organization to facilitate guidance, rather than activities aimed directly at performing this function. Among means of the latter type rapidly finding a place in secondary schools is the "survey of occupations." This is variously accomplished, but more frequently as a separate course (as suggested in Chapter XII) or as part of the work in English. When introduced as a separate course it is designated by the title just used, or as "vocational civics" or the "life-career" course. The course is gaining ground and (quite properly, in view of its function) finds a place in either the eighth or the ninth grade, whereas formerly it made its appearance in the last year of the high school, after large proportions of children

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most in need of guidance are already eliminated from school. The plan of giving information about occupations through the work in English had its first notable demonstration in the schools of Grand Rapids, Michigan. It has been followed to some extent in many other communities. It has the advantage over the course in vocational civics, in that it continues consideration of the problem of the choice of an occupation over a longer period, but has the disadvantage that teachers of English are often unequipped in training, contacts, or attitude to give the work. Of these two methods the separate course appears to be winning more followers.

Guidance through "try-out" and other courses. Another valuable direct instrument of guidance which is being increasingly utilized consists in courses offered in order to permit the pupil to make contact with essential constituents of one or more occupations or groups of occupations, one of the major purposes being "exploration," or "try-out." These have been too often restricted chiefly to industrial occupations. A related development is the introduction of general or composite courses, such as general science, general mathematics, or general language, the difference being, perhaps, that in so far as these courses contribute to guidance they lean more toward curricular guidance than toward vocational guidance. There is no course, no matter what the field, which cannot contribute to the performance of this important function. It may be confidently expected that teachers will come more generally to understand the relation of success in the subjects in which they give instruction to success in related subjects or occupations, and to utilize this understanding in their coöperation with the high-school guidance program. The utilization of courses in this way need not detract from their pertinence for other purposes for which they are given.

The testing movement and guidance. 1. *Intelligence tests.* Among means of guidance of recent development not already touched upon is the testing movement. Even in their present

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state tests can be of great value in this connection, and their place in any future program of guidance will be of even greater moment.

From the standpoint of guidance the most useful phase of the development to date has been intelligence-testing. Studies of the relationship of performance in intelligence tests to *election of and success in the several subjects of study, to the length*

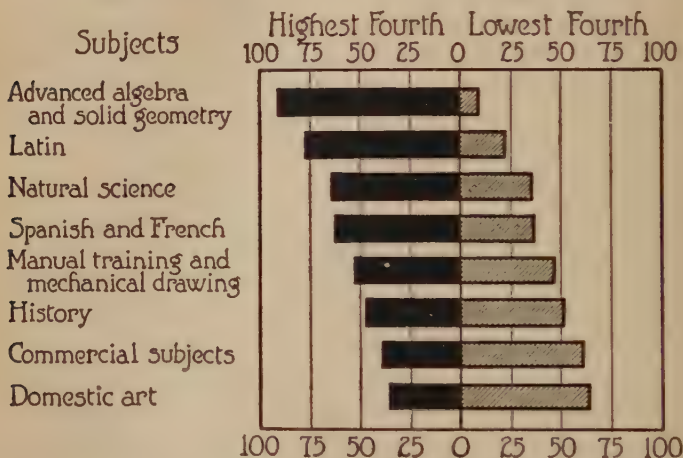


FIG. 68. Number of elections per hundred in each subject group by students in the lowest and highest fourth of students ranked by intelligence-test scores

of stay in school, and to occupational distribution are already available. For instance, Powers (see Fig. 68) has presented data showing that much larger proportions of pupils in the highest fourth of intelligence-test scores than of those in the lowest fourth elect subjects such as advanced algebra, solid geometry, Latin, natural science, and the modern foreign languages, whereas these proportions are approximately reversed for commercial subjects and domestic art.¹ Proctor's

¹ S. R. Powers, (34), pp. 453-455.

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study of the relationship between intelligence and marks in algebra shows large proportions of pupils with I. Q.'s below 100 receiving failing marks. He says :¹

... probable success or failure in algebra can be inferred from the general level of intelligence as disclosed by mental tests. It follows that the high per cent of failure in algebra could be materially reduced if only those were encouraged to take the subject whose general level of intelligence measured up to average or better.

Materials presented by Madsen indicate a higher median intelligence quotient of high-school freshmen receiving passing marks in such subjects as Latin, ancient history, English, and algebra than in manual training, mechanical drawing, type-writing, woodworking, sewing, etc.² While we may hope for adaptation of instruction to intelligence in some of these fields as the school is adjusted to the widening range of ability, data of this sort have an immediate value in guidance.

One may illustrate from Proctor's study also the value of intelligence tests in predicting the probable *length of stay in school*. Buckingham, in his introduction to this study, summarizes this significance as follows :³

Dr. Proctor found, for example, that, expressed in terms of the intelligence quotient, the typical first-year high-school pupil has a mentality of 105. Three or four years later, when elimination throughout the high school has had its effect, the typical intelligence of high-school graduates has gone up 6 points — namely, to 111. Between graduation from high school and entering college another sharp elimination apparently takes place . . . so that the median intelligence quotient for students entering college is 115. As Dr. Proctor points out, if the same process of selection takes place in college as in high school, "we should expect the median intelligence quotient of college graduates to be 120 or over." This means that students of no more than average intelligence will be likely to be eliminated from college before the senior year.

¹ Proctor (36) p. 32.

² I. N. Madsen (33), p. 699.

³ Proctor (36), p. 5.

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Proctor, utilizing data gathered from the use of mental tests in the army during the period of the World War, shows (see Fig. 69), by indicating the ranges of the middle 50 per cent in intelligence-test scores, the notable tendency to

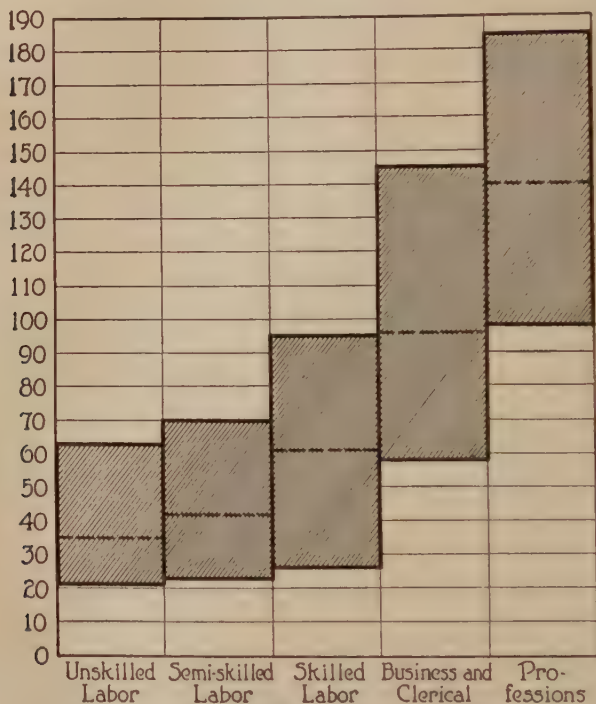


FIG. 69. Ranges of middle 50 per cent in army-test scores and median scores in five groups of occupations. (The broken lines locate the medians)

differentiation in intelligence of the several large groups of occupations. These groups and ranges are as follows: unskilled labor, 21 to 63; semi-skilled labor, 23 to 70; skilled labor, 26 to 95; business and clerical, 58 to 145; professional, 98 to 184.

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Such studies as have been referred to by way of illustration show, or could show, a large extent of overlapping in the intelligence of those who elect certain subjects and succeed in them, or who are engaged in certain groups of occupations. This lessens the possibility of drawing such conclusions as assume a basis for fine distinctions. At the same time they can even now be of value in advising as to probabilities of educational or vocational success. As information and experience accumulate, what is now probability will move nearer certainty, but can never fully attain it for all pupils concerned. This element of uncertainty will, however, be in keeping with what must always be the *monitory*, rather than *mandatory*, character of our guidance.

2. *Tests of achievement.* The report of progress toward guidance in the use of tests of achievement in school subjects is not so encouraging as that just made for tests of intelligence. One important explanation of the delay is the slower development of tests of achievement themselves, which has, again, been slower in the high-school field than in that of the elementary school. Their present multiplication warrants us in expecting a rapid increase in their value for the prognosis which is vital to adequate guidance. They will render it possible to ascertain not only the stage of the individual pupil's ability in a subject but also (a matter of no minor concern) his *rate* of progress in it, and they will thereby enhance the guidance value of courses offered to any extent for exploratory, or tryout, purposes, as well as that of all courses which are regarded as prerequisites to others or offer specific preparation for occupations. Ability, or rate of development, as shown by tests of achievement in first courses in mathematics will, for example, be prognostic of the degree of success in subsequent courses in the same field and in such occupations as engineering, in which mathematical abilities are essential.

3. *Tests for aptitudes.* One who reads at all widely in the field of testing as related to guidance will often meet with the

admission that in such work the schools are never likely to attain a state of development in which specific occupations will be selected for pupils. This is not solely because the task is too tremendous, although this is an important consideration; it is also because democracy and determinism have little in common. The difficulty has been well put by Proctor:¹

The person who selects men for a particular occupation needs only to know the qualifications for success in that occupation. He can plan his tests with a view to eliminating all those who do not measure up to the established standard. If only five out of one hundred applicants are selected and they all prove to be adapted to their work, the tests by which they were selected are counted as satisfactory. The ninety-five rejected applicants do not concern the employment manager.

The vocational counselor, however, has to think of the ninety-five as well as the five. His field is a broad one. He is called upon to advise people possessing every variety of fitness to enter every possible kind of occupation. It would be manifestly impossible for the vocational counselor to give adequate trade or psychological tests corresponding to the infinite variety of occupations open to American youths.

It is true that he must avail himself of every possible scientific aid in arriving at his conclusions. His preparation will necessarily include a wide knowledge of occupations, and special training in the discovery of occupational aptitudes. But he should never persuade himself or lead others to believe that he is able to chart unerringly their abilities and give them an absolute vocational classification. The successful counselor will understand at the outset that he is a guide and not a dictator, and that he is dealing with probabilities and not with certainties.

With something like a consensus on this score by leaders in guidance and testing, it is but natural that they have been led to see that a way to helpfulness is through the development of tests of "aptitude" — tests that will not be used for "pigeonholing" into specific occupations, but will serve the

¹ Proctor (36), pp. 37-38.

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broader function of prognosis for monitory purposes. Among the most promising studies of this sort have been those by Stenquist and Toops. The former worked out certain tests of "mechanical ability" and correlated the scores obtained with scores in tests of general intelligence. He found that "an individual's position in general intelligence is . . . largely independent of his position in general mechanical ability and aptitude,"¹ this being suggestive of two rather distinct types of ability — one dealing with ideas and symbols, and the other with concrete things and mechanisms. Toops probed farther into the significance of these differences for guidance and made inquiries also into ability with clerical items and procedures. We appear to be on the threshold of significant progress in testing for aptitudes.

4. *Limitations of tests for purposes of guidance.* Recent promising advances of the testing movement should not, however, blind us to the inadequacy of tests to comprehend all the needs of guidance. They are far from adequate to serve our needs regarding the things they have been developed to measure. This deficiency applies more to tests of achievement than to tests of intelligence, and more to tests of aptitude than to tests of achievement. But they are lacking also because they do not even touch upon aspects of personal make-up which are exceedingly vital to occupational success and without which it cannot be attained, although the individual might measure high in all the respects previously named. For example, they take little or no account of volitional factors. The problem has aspects, hitherto almost intangible, which have kept us from anything but meager beginnings of objective measurement along this important line. Nor do these tests take into account physical, social, and economic relationships which should not be ignored. Pending the development of tests for these relationships we shall need to continue to judge of their significance by the opinions

¹ John L. Stenquist (42), p. 85.

² Herbert A. Toops (46).

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of those who have contacts with the pupils we are to advise. From some of these persons, such as their teachers, we can hope for opinions carefully formed, possibly capable of being expressed in a numerical rating; from others we must take such opinions as we can get, evaluating them as well as we can.

Records and guidance. No adequate program of guidance can be attained without permanent and cumulative records concerning each pupil being advised. These should not be restricted to the few kinds of information ordinarily to be found on the high-school record card, but for the purposes of guidance should be as nearly complete as possible. They should contain the complete scholastic record, beginning with the elementary school. They should include the results of measurements of intelligence whenever given, including scores and intelligence quotients. Entries should be made of performance on other types of tests: on achievement tests and on prognostic tests. The health or physical history also should be made available. There should be a description of the home and other influential environmental conditions, economic, social, or other; of extra-curricular and extra-school experiences, social, occupational, or avocational; of judgments of characteristics of temperament and personality made by teachers and others who have had opportunity for contact with the pupil; and, where possible, of items pertaining to mental hygiene. There should be records of subject and occupational preferences at different stages in the school career.

The keeping of complete records of the sort here described — these to be accessible to persons having advisory or instructional responsibilities for the pupils concerned — is sometimes opposed, usually on sentimental grounds. As complete a knowledge as possible of all significant strengths and deficiencies is essential to competent guidance. To withhold such materials would be like keeping from a physician information essential to correct diagnosis. The only tenable

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ground for not making them available must be that counselors are not now as competent to use them as are physicians to use the type of information required by them. This objection will disappear in the face of an accumulating knowledge and experience in the field of guidance.

Placement and employment supervision. We should be open to the charge of being illogical and impractical if, after having instituted the means of guidance thus far listed, we should fail to provide for placement in occupations and for employment supervision after placement. Without such provision much of our effort along other lines would come to naught. The former will require a thorough knowledge of occupational opportunities at hand for those leaving school, and this knowledge will be of great value in connection with the use of many other means of guidance already described. It is one of the later steps in guidance for the pupil concerned, and therefore should not be undertaken until it is clear that he will not, cannot, or should not continue his full-time education. The full task of guidance is not completed, however, until he is well launched in his occupational life. For many causes he is likely to shift about from one place or kind of employment to another and may be in need of counsel while doing so. Some workers in guidance contend that this follow-up should continue until the pupil is twenty-one.

A related means of guidance is *part-time employment*; that is, employment out of school hours, on Saturdays, or during summer vacations. Experiential contact with an occupation is one of the best tests of permanent interest and success in it.

Other means of guidance. Many other means of guidance could be discussed, but we shall take space for little more than the naming of several. It is a not uncommon practice for the high-school principal or some other person representing that institution to speak before the pupils in the last grade of the elementary school, explaining the organization of the program of studies and the functions of the several curricula and

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courses with the aim of having the latter selected with more care than would otherwise be exercised. In some communities booklets have been printed describing the local opportunities for secondary education, these booklets being distributed to those about to leave the elementary school, to other young people of secondary-school age not in attendance, and to parents and other adults in a position to advise youth on the question of the continuance of training. In some junior and senior high schools, especially where no regular courses for the study of occupations are in progress, one type of extra-curricular activity is the vocation club, the members of which study vocations and collect information on occupations locally represented. In still other high schools the whole range of extra-curricular activities is looked upon as being helpful to those participating in matters of occupational choice. Talks on occupations are made by their local representatives either before the entire school at assemblies or before groups especially interested. It has been the experience that satisfactory speakers for such presentations are difficult to find. Excursions to local industries are made, both in connection with the course on occupations and other courses and as an extra-curricular activity. The coöperation of other social agencies is also often sought.

III. ORGANIZATION FOR GUIDANCE

The prevalence of guidance activities. The facts are that we have at hand for guidance concerning curriculum and occupation many feasible and partly feasible activities, and that the inquiring visitor to any considerable number of high schools will encounter an impressive array of outcroppings of practices more or less intimately related to the guidance program. Not often will many be found in a single school, but there can be no doubt of the increasing awareness of the need and the increasing prevalence of the practices.

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Expansion and coördination necessary. The genius of the modern secondary school requires that we expand and coördinate this guidance program. It will no longer suffice to depend on sporadic efforts and impulses. Both expansion and coördination will follow organization for guidance. In the smallest communities having high schools this organization will be very simple, since here the obligations rest naturally on the high-school principal or superintendent, although the active coöperation of all teachers will be essential. In all communities of larger size but with only a single secondary-school plant, guidance will center in that institution, the answer to the question of whether the principal or some other person will carry forward the work of guidance being largely dependent on the size of the enrollment. If, in high schools enrolling as many as three to four hundred pupils, the principal assumes the work of guidance, he will need someone else to relieve him of some at least of the important directive and supervisory activities that properly fall to him. It may be doubted whether he should retain these responsibilities directly in high schools enrolling as many as five hundred pupils or more. In high schools of this size there should be some other competent person or persons devoting a part of or all their time to the wide variety of activity that will classify as "counseling" and make up the guidance program. In high schools having deans of girls these officers, if properly equipped by experience and training, can serve as counselors of girls. In still larger cities, with more than one secondary-school plant, there will need to be some person who will serve, whatever his official title, as a director of guidance for the system, directing and coördinating the work of advisers or counselors in the schools. In view of the investigative nature of the work, especially during its early stages of development, it is not inappropriate that guidance should be directed by the departments of research now increasingly common in public school systems, with a separate officer in charge if the size of

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the task requires. At least there must be intimate coöperation between the bureaus of guidance and the bureaus of research.

A pervasive guidance concept indispensable. The recommendation of this type of organization for guidance does not contemplate dispensing with all possible guidance services of the classroom teacher. Although the plan does not endeavor to constitute every teacher in the high school an adviser or counselor, as do some plans of guidance, giving preference instead to counselors having more equipment in the way of appropriate experience and training, nevertheless it cannot operate efficiently without being dependent on the classroom teachers, whose knowledge of the pupil will be our best source of information, and who must know in their class work the relationship between subjects taught and occupations. On the contrary, although guidance activity and advice will focus in a small number of counselors, every possible means must be used to make the guidance concept pervasive of the spirit of the entire staff. Guidance should not be, as it now too often is, conceived of as something to be *attached to* the school. It should, instead, be *woven into the fabric* of secondary education. The attitude of guidance should operate as subconsciously among all those responsible for direction and instruction in the secondary school of the future, as did the attitudes of selection and rejection of pupils in the high school near the close of the last century.

QUESTIONS AND PROBLEMS

1. Discuss from the standpoint of adaptability to the needs of guidance the types of programs of studies described in Chapter XIV.
2. Propose the types of content that should go into a course in vocational civics.
3. For some high school with a broadly elective program of studies make a study similar to that by Powers concerning the elections of high-school subjects in relationship to intelligence quotients.

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4. Should every high-school graduate be admitted to college?
5. Are any objections to be raised to talks on occupations before high-school pupils by those at work in these occupations? How may these objections be in part forestalled?
6. Suggest some investigations the findings of which are fundamental to the adequate functioning of guidance.
7. Should all teachers in a high school be given responsibilities in vocational counseling or guidance? What should be the relation of the classroom teacher to the organization and administration of guidance?
8. Suggest in some detail the organizations for guidance (1) in a high school of two hundred pupils and (2) in a high school of fifteen hundred pupils.

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XVI

ALLIED ACTIVITIES

I. A PROMINENT FEATURE OF THE MODERN SECONDARY SCHOOL

Increasing importance of allied activities. No consideration of the present state of development of American secondary education, or of noteworthy trends within it, would be complete without some treatment of what are variously referred to as "student activities," "extra-curricular activities," "collateral activities," "social activities," etc. Illustrations of these activities and organizations are debating, publications, subject clubs, bands and orchestras, athletic teams, and student councils. There can be no doubt that they have been making increasing demands on the student, on the members of the high-school staff, and even on the community. That they are looming in importance in the minds of educational workers is attested by increasing attention to them in educational periodicals and in educational conventions and teachers' meetings, where problems of the secondary school come up for discussion.

The change in policy toward these activities. It is often pointed out that the history of our attitudes toward these allied activities has shown three stages of development. The first was the stage of suppression, this policy being pursued on the ground that such activities represent illegitimate encroachments on the time of students, time which should be exclusively devoted to their "studies." But being spontaneous, and backed by social and other impulses of the adolescent, they were not thus easily to be done away with. Being

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irrepressible, they continued to manifest themselves, but in forms so untoward as to call for a change in policy which aimed at preventing their operating destructively. This was the policy of toleration and control. More recently there has been emerging a policy which admits their constructive possibilities, one which aims at supervision and control that will achieve their inherent values.

This chapter a summary of recent opinion and practice. Present-day attitudes and policies touching allied activities are shown in the subsequent portions of this chapter, which are in effect an attempt to capitalize the opinions and experiences reported in a wide array of literature appearing, for the most part, in educational periodicals. These opinions and experiences are largely those of men and women in positions of administrative responsibility in junior, senior, and four-year high schools, but there is also a smaller representation of those not in actual control of affairs in secondary schools, although in almost all cases they maintain close contact with such schools. This digest of registered opinion and experience falls under the heads of (1) the values ascribed to allied activities, (2) obstacles to the achievement of these values, (3) the principles to be followed in organizing and administering the activities, (4) the types of activities found, and (5) descriptions of plans of organization and details of administration. In addition, the chapter will be concluded with brief separate treatments, which are likewise digests of opinion and practice, of (6) athletics, (7) publications, (8) student participation in control, and (9) the dean of girls. These concluding sections are to be thought of as illustrative, rather than as comprehensive, since there are many other important types of activity that would come in for treatment if space could be spared. Among the types of allied activities not dealt with directly are literary and debating societies, dramatics, a host of subject clubs, musical organizations, and many kinds of civic-social groups.

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II. THE VALUES ASCRIBED TO ALLIED ACTIVITIES¹

The civic-social-moral values claimed. It is claimed that the values which will accrue to the student participant in these allied activities are wide in scope. For purposes of facilitating presentation and discussion they have been separated into two groups (see Figs. 70 and 71). In the first group have been placed those values rather unequivocally falling under a civic-social-moral aim broadly conceived. All but one of the thirty-eight authors represented (in forty writings) mention training in *some* civic-social-moral quality or relationship (item 1 in Fig. 70). Among the types of statement recurring most frequently under this broad heading are socialization (see value 2); training for social coöperation (3); actual experience in group life (4); training for citizenship in a democracy (6); training for leadership (7); and an improved disciplinary situation and better school spirit (11). Because of great variation in modes of statement encountered during the analysis of the literature it was found impossible to arrive at classifications of these values that would not overlap. There is ample evidence, nevertheless, that a great deal is expected of allied activities in preparation for group life.

Other values claimed. But the values posited are much wider in scope than civic-social-moral. They range (to mention only part of the number) through training for recreational and æsthetic participation (12), health (13), vocational preparation (14), intellectual development (16), recognition of interests and ambitions of students (18), exploration of new fields of activity for guidance purposes (19), improved scholarship through motivation (20), constructive influence on methods and content of instruction (21), recognition of the nature of the adolescent student (22), and an improved relationship between school and community (24).

¹ This section and the three following are based on (9) chap. ii.

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Relation to aims and functions of secondary education.
Among the thoughts that first come to mind, as one considers the scope and nature of values claimed for allied activities, is

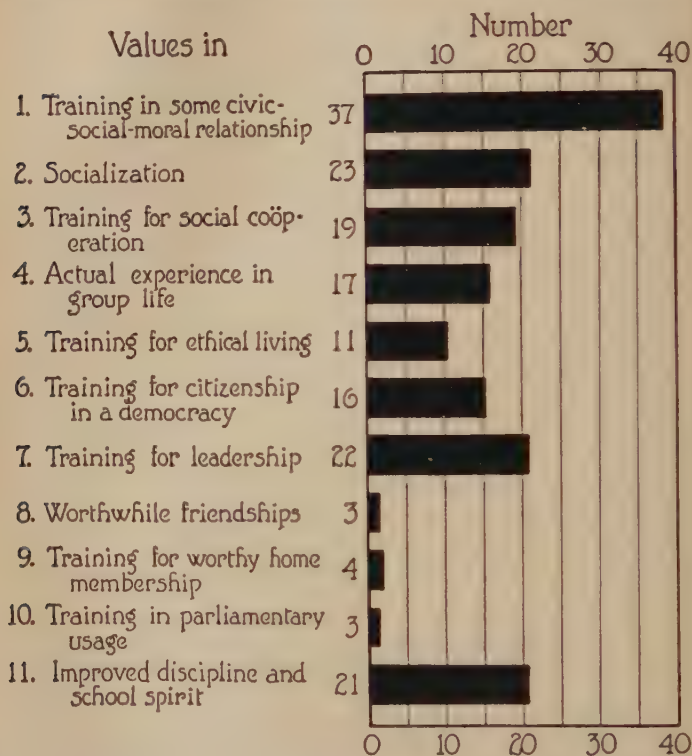


FIG. 70. Number of writers recognizing each civic-social-moral value in allied activities. (Values recognized three or more times by thirty-eight writers in forty writings)

the striking degree of their coincidence with any comprehensive formulation of the aims and functions of secondary education. This approximation to coincidence will be seen as soon as comparison is made with the formulation attempted

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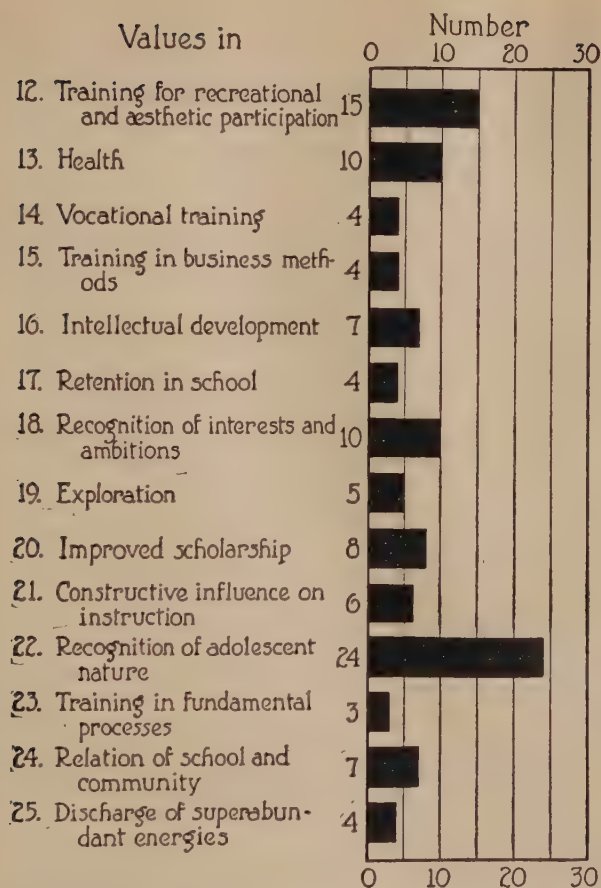


FIG. 71. Number of writers recognizing each value in allied activities. (Values other than civic-social-moral mentioned three or more times by thirty-eight writers in forty writings)

in Chapter IV. The wide variety of claims classified as civic-social-moral are easily identified with the civic-social-moral aim as there proposed. Other values are readily identified

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with the aims of recreational and æsthetic participation, physical efficiency, and occupational efficiency. The functions likewise are represented; namely, achieving a democratic secondary school by "retention in school," recognition of individual differences by "recognition of interests and ambitions," and exploration and guidance by "exploration." The two remaining functions, recognition of adolescent nature and training in the fundamental processes, have what are essentially identical counterparts in the analysis of claims.

This approach to coincidence should not be surprising. It is nothing less than logical and natural. Not only should the more formal agency of the school, the curriculum, be molded toward achieving these goals; this should be just as insistently required of the less formal agencies as represented in the allied activities. All the agencies should be aimed at common ends. This acknowledgment does not hold the allied activities to an obligation of contributing to the achievement of each of the aims and functions of secondary education in the same proportions as does the curriculum: there will be variation in this respect, just as there must be differing contributions by different formal subjects to the achievement of the several aims and functions. The acknowledgment is, however, an admission of the legitimacy of the allied activities that calls for administering them in such a way that the justifiable values claimed may be achieved.

III. OBSTACLES TO ACHIEVING THE VALUES CLAIMED

Some who are in close touch with the actual operations of student activities, as are most of the writers represented in a composite way in the materials here reported, will hold the opinion that these writers are somewhat oversanguine in the matter of the values claimed. They will want to point to certain hindrances or obstacles to achieving these values, at least with some of the practices being followed in secondary

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schools in administering and supervising the allied activities. They will call attention to instances in which these activities, instead of being of constructive value, may turn out to be derogatory to the achievement of aims and functions of the school. The reported analysis, however, disclosed frequent awareness of these obstacles. The most frequently recurring of them may be grouped as follows, the numbers in parentheses indicating the frequency of mention in the literature examined :

1. Extent of participation (22)
2. Anti-social practices (16)
3. Supervision (14)
4. Economic considerations (11)
5. Outside interference (5)
6. Duplicating activities (4)
7. Central control (3)
8. Conflicting schedules (2)
9. Lack of satisfactory facilities (2)

Illustrative of the specific obstacles which have been classified in these groups are, for group 1, excessive participation (resulting in interference with scholarship) by some students or under-participation by others; group 2, secret societies and cliques have sometimes developed; group 3, teachers are unwilling to sponsor the activities, are unconvinced of their value, or in supervising attempt to dominate just as they are accustomed to do in course work; group 4, the activities are too costly, or there is waste of funds and inadequate accounting; group 5, outside interests, such as those of spectators or alumni, sometimes demand anti-educational lines of emphasis; group 7, there is lack of centralized policy and control. The significance of the remaining groups is apparent without illustration.

There is no gainsaying that this is a formidable array of hindrances, one that demands no mean order of constructive ability and effort to overcome.

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IV. THE PRINCIPLES OF ORGANIZATION, ADMINISTRATION, AND SUPERVISION

Nature and source of the principles. In view of the wide scope of values ascribed to allied activities and of the obstacles to their achievement as just summarized, it is only natural that friends of these activities should endeavor to point out the road by which the latter might be avoided and the former attained. The writers represented have sometimes done this by proposing "rules" to be followed, sometimes by admonitions concerning practices to be avoided or encouraged, and sometimes in other ways. It was not difficult to extract from these rules and admonitions what are here designated as *principles* of organizing, administering, and supervising the activities. If not explicit in the selected writings, they are clearly implicit in what is there recommended. These principles — certainly those that recur most frequently, as shown in Fig. 72 — merit serious consideration by those who have to do with allied activities in secondary schools, especially since they may be assumed to have something of experiential support. The principles have been grouped under four main classifications, as relating (1) to centralization of organization and administration, (2) to supervision, (3) to the scope of activities and extent of participation, and (4) to other administrative problems.

1. *Principles relating to centralization of organization and administration.* Four principles placed in the first group were mentioned by at least three of the writers. It is recommended (1) that all activities be definitely under school direction and control, rather than proceed under a laissez-faire policy, and (2) that in accordance with this first principle there must be some plan of centralization and unification. Essentially corollarial to these principles are the recommendations (3) that there be authoritative sanction by the principal or other central agency for all new organizations and activities

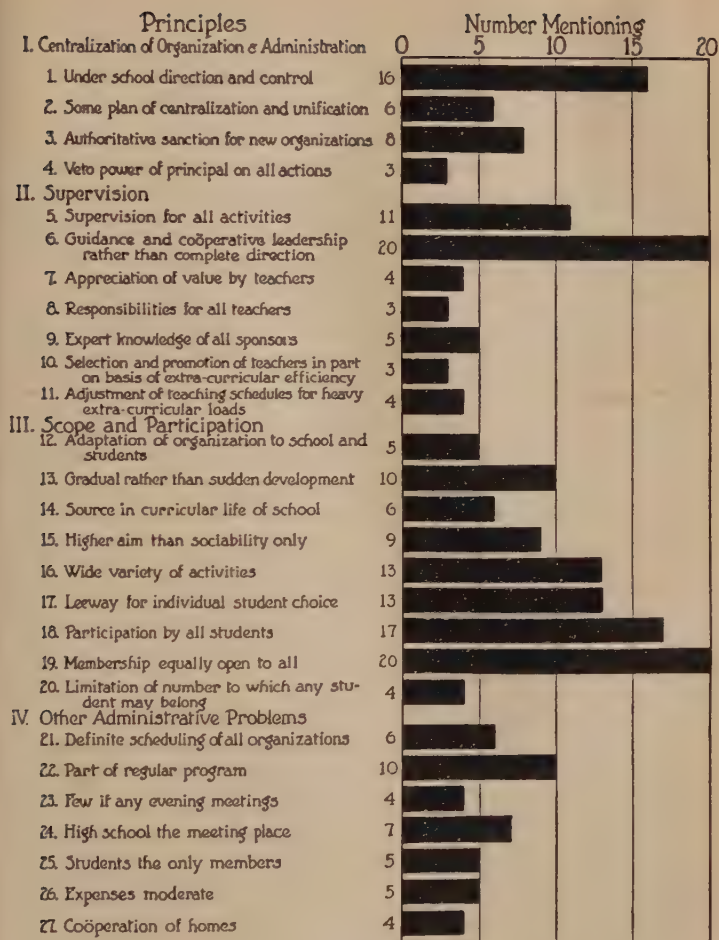


FIG. 72. Number of sources recognizing each principle to be observed in organizing, administering, and supervising allied activities. (Principles recognized three or more times in the sources)

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instituted and (4) that the principal be given veto powers over all actions of organizations. It is sometimes pointed out that the conduct and spirit of the organization can be such as seldom to require resort to the prerogative of veto.

2. *Principles relating to supervision of allied activities.* A large number of writers urge (5) that supervision be provided for *all* activities and (6) that this supervision should be in the nature of guidance and coöperative leadership rather than the complete direction and domination by the teacher characteristic of usual instructional procedures. The relation of the observance of this principle (which is proposed with notable frequency) to the achievement of several important values, such as training for leadership, for citizenship in a democracy, etc., should be apparent without explanation. It is pointed out (7) that efforts should be made to secure an appreciation of the value of these activities by all members of the teaching staff. Some go even farther and urge (8) that all teachers should have responsibilities in the way of extra-curricular sponsorship. (9) Special acquaintance on the part of the sponsor with the field represented is insisted on by certain writers, some of them mentioning the desirability of having members of the staff sponsor activities in fields related to the subjects they teach. The word "expert" is not often used and would perhaps represent too high a requirement to be universally applied, although some special knowledge is essential. Consequences of the two principles last mentioned are the recommendations (10) that selection and promotion of teachers be in part on the basis of efficiency in directing allied activities and (11) that there be adjustment of teaching schedules for teachers carrying heavy extra-curricular burdens.

3. *Principles relating to the scope of the activities and the extent of participation.* The recommendations in this group are larger in number and are assuredly no less important than for any other group. The first emphasizes (12) the desirabil-

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ity of adapting the organization and activities to the particular school and to the students enrolled. This is clearly an admonition against taking over in some school, without considering its adaptation to local needs, the plan operative in another school or some proposed "standard" organization or activity. Closely related to this principle is the one that urges for any local situation (13) gradual rather than sudden development. It is recommended further (14) that the activities should as far as possible take rise in the curricular life of the school and be developed in association with it. As far as possible, likewise, (15) activities having no higher purpose than mere sociability should be discouraged, especially as sociability will be an inevitable accompaniment of all efficient organizations and activities having other aims either announced or implicit. A large proportion of the writers would insist on (16) a wide variety of activities, as well as on (17) leeway for choice of activities by the individual student. The scope and plan of operation should be such as (18) to encourage participation by all students, (19) with membership in all organizations equally open to all. Probably few of the writers represented, if any, would carry the last requirement so far as to preclude some separate organizations for boys or girls or honorary societies, admission to which would be conditioned on levels of scholarship unattainable to students of mediocre native ability; nevertheless they are concerned to the extent of insisting on democracy of membership and participation. Some of the writers proposing this principle point out that it is violated where high-school fraternities and sororities and other secret organizations are permitted to exist. (20) To prevent over-participation, certain of the writers recommend placing an upper limit on the number of organizations to which any student may belong.

4. *Other principles of extra-curricular administration.* A number of writers urge (21) that meetings of all organizations be definitely scheduled. This will help to avoid conflicts

and will also aid in putting the activities on a constructive working basis. A larger number would (22) make the activities a part of the regular program. Usually this refers to a period at the end of the school day, but some would go farther and give them a place in the heart of the school day. This practice is more often proposed for the junior than for the senior high school. Partly to prevent outside interference and partly for other reasons, (23) evening sessions are to be prohibited or kept to as small a number as possible, (24) the school building should be the place of meeting, and (25) the only active members (except in some instances members of the faculty) should be those regularly enrolled as students. Primarily to encourage universal participation but also to prevent a waste of funds, (26) expenses of allied activities should be kept low. Finally, (27) the coöperation of the homes is to be sought.

Curricular versus extra-curricular. Several of the principles stated bear with greater intimacy than others on a legitimization of allied activities, to such an extent, in fact, that the attitude taken toward these activities resembles somewhat that taken toward subjects or courses in the curriculum. Among these principles are those urging special knowledge in the field on the part of the sponsor, selection and promotion of teachers to some extent on the basis of efficiency in supervising these activities, adjustment of the teaching load in instances where the burden of supervision of the activities is heavy, having the source of the activities in the curriculum, definitely scheduling them as a part of the regular program, making the high school the usual meeting place, and admitting only students to membership. Closely associated with such legitimization is the wide array of values already seen to have been claimed, an array wide enough to approach identity with the entire gamut of aims and functions of the secondary school.

The tendency toward legitimization in the minds of the authors represented raises the whole question of whether the

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activities should not become a part of the course work, instead of being set apart for separate administration and supervision. There are those who would prefer to see the activities incorporated in the curriculum, and there is something to be said in behalf of such a procedure. There is, on the one hand, the danger that in administering a separate program of extra-curricular activities we shall be unintentionally removing from the courses of the school all or most of those activities in which students tend to engage spontaneously, leaving for course work only the more formal and less stimulating types of activity, to secure the performance of which some measure of coercion must be used. On the other hand, it may be questioned whether there is not need for some leeway for student activity which should not or cannot be curricularized. Certainly, with present traditions among our teachers as to method and content, and in our communities as to what should go forward as course work, it will be long before complete curricularization can be accomplished. In the meantime, if not permanently, we shall need to proceed with as close an alliance as possible between curricular and extra-curricular, keeping in mind the aims attainable and the principles to be followed. With this in mind it seems more appropriate to designate these activities as "allied" or "collateral" than as "extra-curricular."

V. TYPES OF ALLIED ACTIVITIES AND ORGANIZATIONS

Classes and types of activities and organizations. Allied activities and organizations are known to include many classes and types; so many, in fact, as at many points to baffle efforts at classification. Something of the sorts of interest represented may be seen in the following distribution of *classes* of activities named in the forty references analyzed. Other investigators might easily have arrived at a somewhat different grouping, but the following classification is at least

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suggestive. The numbers in parentheses represent the number of times each class and the interest included under it were found.

Literary (41)	Scientific (55)
Forensic and declamatory (45)	Musical (79)
Journalistic (45)	Arts and crafts (50)
Dramatic (32)	Industrial (26)
Foreign language (38)	Home economics (37)
Historical (9)	Commercial (16)
Geographical (14)	Physical and athletic (163)
Mathematical (14)	Civic-social-moral (174)
	Miscellaneous (10)

The total number of activities encountered in the forty references was eight hundred and forty-eight, making an average of more than twenty per reference. This is a large average, especially if one bears in mind that few of the writers set out to provide anything like a complete list.

This method of classification cannot disclose the *types* of organization represented in secondary schools. These also range widely from small informal groups scarcely organized through committees, teams, staffs, clubs, and societies to larger organizations such as athletic associations, student councils, and student-body organizations.

The interests and organizations illustrated. The larger groupings just reported do not sufficiently show the extremely wide variety of interest represented. In the total of eight hundred and forty-eight activities encountered during the canvass, there were two hundred and thirty-one more or less different sorts. While space cannot be spared to reproduce the entire list, some illustration of those most frequently recurring is desirable. Under *literary, forensic and declamatory, journalistic, and dramatic* there are such interests or organizations as literary societies, reading clubs, debating societies, public-speaking clubs, press associations, annual staffs, dramatic clubs, and scenario clubs; under *foreign language,*

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French, Spanish, or Latin clubs; under *historical*, history or current-history clubs; under *geographical*, geography clubs and travel clubs; under *scientific*, science clubs, wild-flower clubs, chemistry clubs, radio clubs, engineering clubs; under *musical*, choral clubs, glee clubs, orchestras, bands, musical-composition clubs; under *arts and crafts*, sketch clubs, poster clubs, camera clubs; under *industrial*, agricultural clubs, gardening clubs; under *home economics*, millinery clubs, needle-craft clubs; under *physical and athletic*, athletic associations, athletic honor societies, football teams, basket-ball teams, hockey teams, tennis associations, hiking clubs; under *civic-social-moral*, civic clubs, parliamentary-law clubs, social-service clubs, class organizations, assemblies, general organizations, student councils, HiY's, boys' welfare clubs, girls' welfare clubs, Boy Scouts, Camp Fire Girls. These sometimes appear in schools under the names as reported, or they may bear titles more interesting to junior or senior high-school students, such as "Papyrus," "Book-Lovers' Club," "Forum," "Kodak," "Live Wires," "Triangle Club," "XYZ Club," "Sphinx Club," "Know Your City Club," etc.

VI. PRACTICES IN ORGANIZATION AND ADMINISTRATION

The organization for administering allied activities. In attempts to develop allied activities and place them on an educative basis it is early found necessary to effect some sort of organization for the purpose. Since attaining the full scope of educative value inherent is in considerable part dependent on the play of student initiative, it is essential that the organization make ample provision for student representation. On the other hand, since the students are not yet adults, and since the school concerned is an educational institution, it is essential that the faculty responsible for making it such be a vital element in the organization. Staff representation is essential, even though one principle of supervising the activi-

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ties is "guidance and coöperative leadership rather than complete direction and domination by the teacher." It may even be regarded as essential just *because* of the importance of the principle.

The more important elements of the organization on the side of the students (if we may judge from relative frequency of mention in the literature on the subject) are (1) student leaders in each of the activities; (2) a student council, senate, or cabinet; (3) a general organization of the student body, including automatically all students; and (4) a president of this student body who also in many organizations serves as president of the council. In schools of large enrollments with vigorous development of the activities, there may also be (5) boards for each large group of activities; these will be made up chiefly of certain officers in the specific activities and, in point of the place in the organization, will stand between the activity as organized and the student council or senate. On the side of the faculty there are (1) the "sponsors," or "advisers," for each activity or group of activities and (2) a "supervisor," or "director," of all allied activities who, in the small high school, would usually be the principal. For larger schools there is also sometimes proposed or provided (3) an "advisory council" to the principal, made up of members of the faculty, this group finding place between the head of the school and the sponsors of specific activities.

As to methods of selection and appointment of the officers, trends of expressed opinion seem to favor student selection of student leaders and officers, and appointment of faculty officers by the principal. Important deviations from these trends are chiefly of two sorts. One of these concerns the setting up of qualifications for membership in the student council in the way of scholarship or along lines requiring faculty approval. The other is the selection, by the student group concerned in an activity, of the faculty sponsors for

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that activity. The latter practice can hardly be continued after a vigorous development of activities, as it tends to accentuate unequal distribution among teachers of responsibilities in sponsorship rather than to remove them. It is likely also to violate the important principle of requiring all sponsors to have special knowledge in the special field, since students, in making selections, may be moved more by the popularity of the teachers than by their expertness in the allied activities concerned.

The organization, its purposes, the selection of officers, their qualifications and functions, and the like are usually expressed in a *constitution*, enacted and amendable by the student body.

Illustrative organizations. A plan of organization which in spirit and in certain larger features, although not in all details, carries out this trend of opinion, and which is adaptable for use in high schools of good size, is illustrated in Fig. 73. It was proposed and put into operation by Wilds. A portion of his verbal description of the plan may be quoted:¹

Our plan is modeled somewhat after the city-manager plan. The principal and students together form the policy-determining body, but an expert supervisor performs all the executive functions, assisted by a small representative senate, the work being carried on under his direction through a number of closely correlated boards. The extent to which the work is unified and systematized may be seen by a glance at the chart, which has been prepared to illustrate the scheme.

The general organization of the student body, of which every student is automatically a member, is known as the Students' Association. Each year this body elects a president, and this office is considered the highest honor that can come to a member of the student body. The president of the Students' Association acts also as chairman of the School Senate.

The School Senate is the unifying body of the entire scheme. In this organization are centered the extra-curricular activities of the

¹ Elmer Harrison Wilds (29).

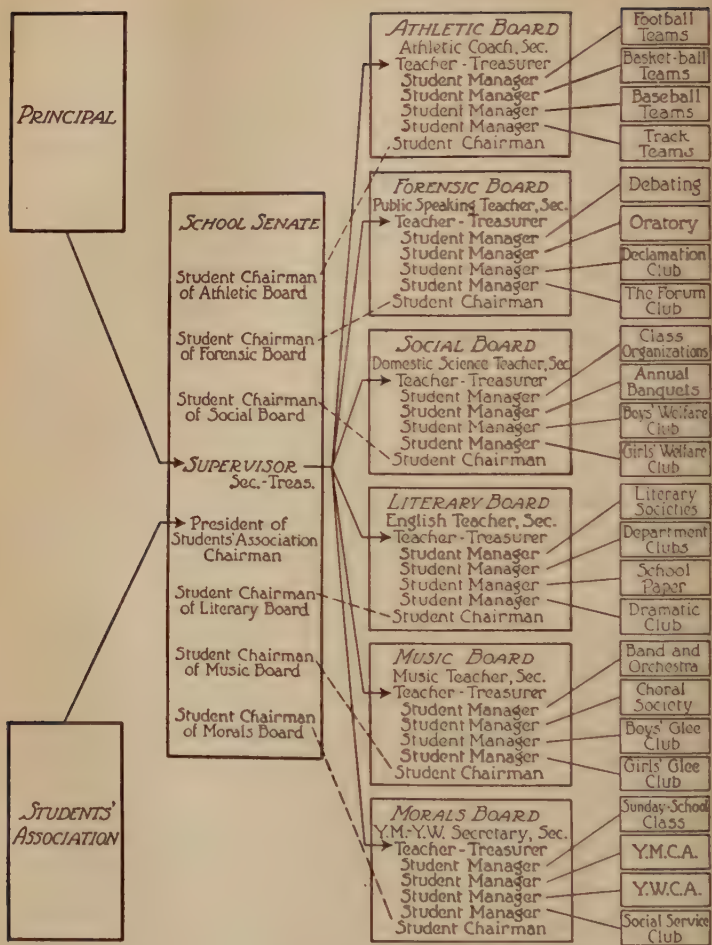


FIG. 73. A plan for the administration of extra-curricular activities
(After Wilds)

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school. It is composed of eight members: the six student chairmen of the six boards; the president of the Students' Association, who acts as chairman; and the Supervisor of Extra-Curricular Activities, who acts as secretary-treasurer of the Senate.

The supervisor is the keynote of the whole scheme. He must be, beyond everything else, a leader of leaders, with tact, sympathy, and attractive personality. . . . He must be alive to his opportunity of training the students for physical, social, moral, and civic efficiency. . . .

There are six boards with four activities under each board. . . .

Each board is made up of seven members: the student managers of the four activities under the direction of the board; the student chairman, appointed by the president of the Students' Association; a teacher appointed by the supervisor, who acts as his financial agent; and the coach or director from the faculty, who acts as secretary and arranges all schedules subject to the approval of the supervisor, who is a member *ex officio* of all boards.

It is apparent that such an organization as planned by Wilds would be top-heavy for small high schools, that some part of the administrative machinery should be dispensed with in such situations. Where the number of allied activities and organizations is not large, the boards intervening between the activities and the senate can be omitted; the school senate could then be composed of the student leaders (that is, captains, presidents, and the like) of the several activities, with the supervisor (in small schools, usually the principal) and the president of the students' organization. The skeleton of a plan somewhat different and suitable for small schools is suggested in Fig. 74. Each activity or organization (activities 1, 2, 3, 4, 5, etc.) has its sponsor appointed by the supervisor (or principal), and its student leader elected by the participants or members. These sponsors and student leaders for all the activities, with the supervisor (or principal) and the president of the students' organization, make up the school council. This council, being on the one hand representative of the students in the activities and on the other of the

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general student body and faculty, is so constituted as to afford centralization and coördination of the activities and to accomplish this in a coöperative way. A practicable modification of this plan would be to have both (1) a student council composed of student representatives of activities and the

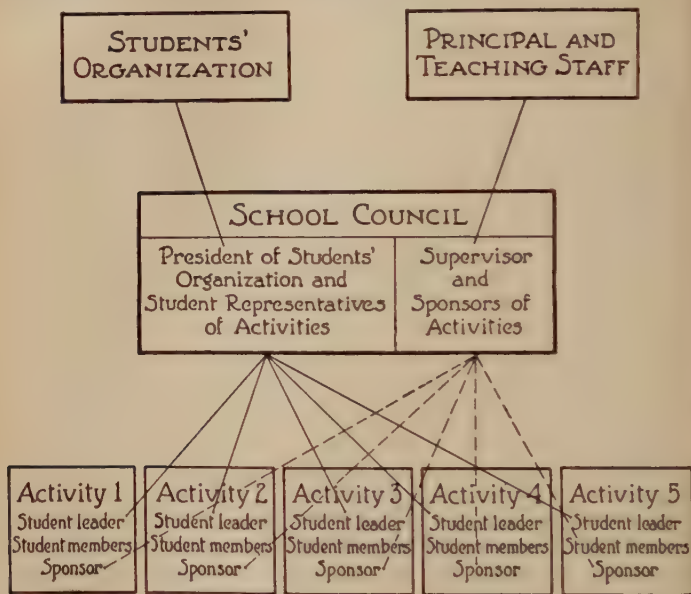


FIG. 74. Skeleton of plan of organization of allied activities for small high schools

president of the students' organization as shown, the supervisor (or principal) being ex officio a member, and (2) a committee of sponsors advisory to the supervisor (or principal) and faculty. These groups could meet separately, or together as a united school council, depending on the nature of the business to be considered.

The organizations presented are no more than illustrative. The need of recognizing the principle of adapting the organi-

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zation to the particular school and the students enrolled has already been mentioned earlier in the chapter. There are few schools in which some beginnings of organizations have not already appeared, and it is usually best in some way to incorporate these beginnings in any more comprehensive plan. The same general purposes can be accomplished by a variety of plans of organizations. Among essential considerations to be kept in mind while effecting an organization is the representation of all interests, and the need of facilitating student-faculty coöperation. In studying any plan of organization it will be found helpful to put it to the test of charting, as has been done for the illustrative plans, — a type of test often used for plans of governmental organizations for municipalities, school systems, and states. Finally, it is desirable to state the point of view which has been implicit in the foregoing, that some well-thought-out plan of organization will be of great help in achieving the values ascribed to allied activities. In addition, such organization provides the vehicle for pupil participation in school government, as treated in a later section of the chapter.

Practices in recognition and limitation of participation. There has been some discussion of and experimentation with *granting credit* for participation in allied activities. Judging from the literature examined, neither the opinion nor the practice favoring this policy seems to be gaining ground at all rapidly. Its mention is both infrequent and unemphatic. A consideration offered in its behalf is to the effect that such a practice will hasten the legitimation of the extra-curricular. Among considerations opposed is the desire to keep these activities as spontaneous as possible, since there should be some things in which students engage solely because they seem worth doing and without the artificial stimulus of school credit. It is also more difficult to measure performance in the uncurricularized than in curricularized activities, because they have been less subjected to standardization.

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Practices that seem to be gaining ground are those that aim at regulation of participation by some "major-minor" or "point" system. In the major-minor system all activities are classed as majors or minors according to the magnitude of responsibilities involved, and the extent of participation is regulated by allowing during any semester or school year participation in a maximum of, say, two majors, or the equivalent in majors and minors. The point system assigns a number of points to each activity; one writer illustrates by presenting the following list:¹

ACTIVITIES	POINTS
Student president	5
Student treasurer	5
Student secretary	5
Senior president	5
Athletic managers	4
Athletic captains	2-3
Council members	3
Board secretaries and treasurers	3
Class secretaries and treasurers	3
Junior, sophomore, and freshman presidents	2
Junior, sophomore, and freshman vice presidents	½-1
Athletic-team members	2-3
Officers of minor organizations	1-2
Members of minor organizations	½-1
Chairman of standing committees	1-1½
Chairman of committees	½-1
Members of committees	½
Parts in plays	¼-2

This writer says that, according to this plan, "Each student is expected always to carry one point, and no student is allowed more than nine points at any one time."

The reason for such a plan is twofold: to limit the number and extent of one student's activities and to develop the unsocial student. Those who are familiar with high-school student life know that one of the most perplexing problems involved is this

¹ Hazel M. Harwood (12), pp. 279-281.

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double one. First, how to prevent, especially in the small high school, the president of the Senior Class from being football captain, editor-in-chief of the annual, hero in the class play; in short, from being everything? Second, how to bring out the shy pupil, who depreciates his or her own ability. . . ?

One leaves discussions of point systems, either in the literature on the subject or among schools in which they are operative, with the impression that although they discourage over-participation and stimulate to some participation many who would not otherwise engage in allied activities, they are less successful in the latter respect than in the former. This is true, more than for any other reason, because it is difficult if not impossible in most school situations to *compel* minimal participation. Even if it is possible to do so, it is undesirable, in view of the intimate relationship between spontaneity of participation and the values achievable. For many localities some measure of curricularization of allied activities seems at present the only sure road to universal participation.

Another means at hand of stimulating participation is the privilege of wearing the school insignia, or "letter." Usually this privilege is restricted to those who participate in inter-scholastic athletic contests, but there is some tendency to widen the range of types of achievement for which it is granted.

Additional administrative practices. Other practices in administering allied activities, mention of which can be made in the scope of this chapter, are the system of records of membership and attendance, the place of the activities in the daily schedule, and the control of finances.

1. The first of these practices calls for two records: a current record not only of membership, but also of attendance at the sessions of the activity or organization. It is suggested that this may be kept by student officers. The other is the record of membership, kept in the same permanent cumulative files of the school as the records of course work. The

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permanent record should contain, besides the fact of membership and participation and the points earned in any point system that may be in operation, the sponsor's more or less definite estimate of the quality of participation.

2. Those who mention the times of meeting are prone to urge that all activities be regularly scheduled, some indicating a preference for the end of the school day after class sessions have been concluded, others a preference for some part of the regular school day. The latter practice is recommended more often for junior high schools than for senior high schools.

3. A large number of writers in the field insist that there be rigid business procedure in accounting for funds involved in the conduct of allied activities. They point to the large sums represented in schools having a vigorous development of such activities, and the frequent waste and other maladministration where the business procedure is not carefully conducted and safeguarded. There is a rapidly increasing number of schools having but a single fund in charge of one treasurer, with no disbursements from it without adequate authorization. This fund is often budgeted as is increasingly done in adult affairs, governmental and otherwise. The business procedure is also often supervised by the commercial department of the school. It is advocated that, in addition to serving as a check on immoderate expenditures and other wastes, these features of financial administration are of value in building up appropriate business attitudes and habits in the students.

VII. ATHLETICS

Values ascribed to athletics. The brief treatment of athletic activities will be restricted to a summary statement of (1) the *values* they are said to have when properly developed and administered, (2) the *obstacles* to achieving the values inherent, and (3) the *principles* that should be observed in

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administering them. The values claimed, as might be anticipated from the treatment of physical education in Chapter XIII, are for the most part classifiable under two main heads: the physical and the social. The specific items more frequently mentioned under physical values are health, muscular exercise, physical and psycho-motor development, and habits and interests in physical recreation. It is interesting to note that social values are more frequently claimed and are much wider in range. They include, among others, training in leadership and initiative, training in coöperation, training for citizenship, and improvement of the discipline and spirit of the school. There are a number of references to "social" and "moral" qualities in a general or comprehensive sense; but one just as frequently encounters more nearly specific personal and moral qualities, such as courage, loyalty, obedience, decision, alertness, courtesy, self-control, self-subordination, and good sportsmanship. Both the general values and the specific social values are coincident to a surprising degree with the social values claimed for all allied activities as reported earlier in the chapter. In addition to the physical and social values others are occasionally mentioned; but if predominance of mention by those conversant with athletics is a criterion, the scope of purpose is mainly in these fields.

The obstacles and other unfavorable features. Judging from emphasis in their writings, the friends of athletics in the high school are fully aware that these activities are not accomplishing all the values ascribed to the extent that they should. They refer repeatedly to certain unsatisfactory conditions that not only prevent achievement of the values but are even destructive in their influence. Among those often mentioned are "outside" influences; that is, those of spectator, business man, or alumnus. Closely associated are the exaggeration of the importance of winning, near-professionalization, unbalanced development of participants, too much publicity for

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"star" players, physical injury to members of teams, dishonesty in matters of classification and participation, financial overemphasis, and detrimental influence on scholarship, not to mention the discouragement of the less robust from participation. A striking characteristic that all these objectionable influences and practices have in common is their intimate association with interscholastic athletics. This is in effect a double confession. The first is that interscholastic athletics are too often the only kind we have; the second is that the evils can in large part be offset by developing a vigorous program of intra-school athletics.

Principles of athletic organization and administration. Although principles have not been formulated as such by any of the writers, they are clearly implicit from the statement of conditions which should obtain. From what has already been indicated it was to be expected that these writers would urge the application of vision to organizing and administering athletics — vision that sees in athletics great possibilities for the training of youth through the supervision of their physical play life; that calls for a program of athletic participation for all, including girls as well as boys, and not merely for a few who are on interscholastic teams; that involves the continuation of interscholastic contests, but on a high level and with strict observance of the spirit as well as the letter of rules of eligibility; and that insists upon complete medical and physical examination before participation. To achieve the broad scope of physical and social function claimed, it is essential that we have as coaches only men who are adequately prepared to be *instructors* — who are experts in physical education rather than mere trainers of winning teams — and who, in addition, will exercise the best moral and social influence on participants.

Other requirements of an adequate program of athletics often mentioned are gymnasiums and large sites with ample space for playgrounds. In addition, athletics should be organ-

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ized with physical education as a regular instructional department of the school, and all members of the staff who have responsibilities for coaching should have allowance of time for the work. To assist in realizing all possible extra-curricular values, students should be given a voice in control through athletic councils and athletic associations.

VIII. PUBLICATIONS

Values of student publications. Besides the "handbook" (a booklet often issued by high-school students to enable incoming students to adapt themselves more readily to a new school situation) there are three chief types of student publications in high schools, although an occasional additional type is to be found. These three are the annual, the school paper, and the magazine. Their commonness is in the order named; more schools publish annuals than papers, and more publish papers than magazines.

It requires only brief contact with the literature on student publications to discover that of these three types the most highly prized by the writers is the school paper. The following quotations from an article by Reavis are illustrative of discriminating statements concerning the value of such a publication:¹

Any publication that serves as a medium of communication for the school community, if prepared by the student body as a real record of interesting school happenings, and if properly edited, should have an important place among the activities of a modern high school. It should stimulate *purposeful writing* of the sort that has been greatly neglected by English teachers of the culturist type. . . .

Teachers who are willing to encourage writing of this kind will find the school paper a great incentive to production. It makes available for themes and paragraphs the whole range of interests and activities of school life. The knowledge that approving friends may see and read in print the results of one's efforts encourages

¹ W. C. Reavis (42). The italics are the present writer's.

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greater care in writing and the selection of topics that are of current interest to the school. . . .

While the stimulus to vital English work may be regarded as the most important result of publication in a modern secondary school, *the impetus given to school spirit, pride, and loyalty* is a close second. Through the columns of the paper, ideals and sentiment may be developed that will raise the general tone of the school.

Another value of the school paper not to be overlooked is the *increase in the efficiency of the school through the opportunity provided for regular communication between faculty, student body, and parents*. Important announcements, information regarding school policies, significant changes of any kind, and school or departmental progress can be placed before the school community in such form that proper assimilation of such matters can be made by every person concerned. As a result, school opinion can be more quickly and easily crystallized and school solidarity promoted through the influence of the school press.

A composite of the values ascribed to the school paper by high-school principals is shown in the following list (gathered by Nixon) of its "purposes," as seen by one hundred and twenty-nine principals of high schools. The list¹ of purposes reproduced here includes only those mentioned by 10 per cent or more of the principals; they are placed in the order of frequency of mention (as indicated by the percentages in parentheses):

Present school news (61.2).

Spread school spirit (45.7).

Advertise school (21.7).

Foster better English and writing (20.2).

Unify school (17.8).

Develop initiative and responsibility (17.8).

Provide project in journalism (16.3).

Afford outlet for literary, business, and artistic talents (12.4).

Portray school life (11.6).

¹ Adapted from Table I in O. F. Nixon's "High-School Publications," p. 8. Master's thesis on file in The University of Chicago Library.

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Although this list has much in common with the values pointed out in the quotation above, it may be seen to be somewhat wider in scope. Here are values which, if achievable, will go far toward warranting the expenditure of vigorous and long-continued effort in developing and maintaining a school paper.

The principles of organization for a school paper. From their experiences a number of writers have formulated recommendations on practices desirable to follow in conducting the affairs of a school paper. Among the best and, at the same time, briefest of these are those made by Reavis in connection with the statement of values already quoted.¹

In the first place, some adult member of the school, capable and willing to assume the responsibility of directing the project, must be secured for adviser. The success of the paper depends upon this individual. If he allows material from the student body to go into print uncensored, the value of the paper to the English work of the school may be entirely lost, and the morale of the school may be seriously impaired. He must direct the efforts of the enthusiastic contributors and hold them responsible for worthy standards of attainment. To maintain high standards of workmanship without suppressing the originality and the spontaneity of the youthful contributors is a task that requires considerable tact and rare skill in constructive criticism. . . .

In the second place, competent students must be secured for the positions of responsibility on the staff. Without the coöperation of well-qualified individuals acting as managing editor and business manager, the task of the faculty adviser would be too burdensome. Around these officers may be gathered a number of assistants of less marked ability who are capable of rendering valuable assistance to the leaders. The more responsible positions should never be filled by students who have no other qualification than social popularity or prestige. . . .

In the third place, the success of the undertaking will depend upon the ability of the student body and the school faculty to maintain the degree of sustained effort required to carry on the

¹ Reavis (42).

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project. Momentary enthusiasm will not suffice if the publication is to appear at daily, weekly, or monthly intervals. The student body and the faculty cannot pass to the board of editors and the adviser the responsibility for the work of producing the paper. . . .

Nixon's study (see page 610) reports certain suggestions of the principals consulted for a school where the establishment of a paper is under consideration. Only suggestions made five times or oftener are here listed, in the order of frequency of mention :¹

Make it a project in journalism (10 times).

Watch the finances (10).

Have a good supervisor (9).

Select a good staff (8).

Have strong faculty supervision (7).

Add printing to the school offering (7).

Study other publications (6).

Work for quality (5).

A host of additional suggestions are made, but these are the most prominent in the minds of principals.

Frequency of issue and source of funds. Nixon learned the frequency of publication of 124 school papers, as follows: weekly, 50; bi-weekly, 49; tri-weekly, 1; monthly, 16; six-weekly, 1; bi-monthly, 7. In addition, large high schools sometimes have daily papers. In point of fact, some relationship could be found between frequencies of issue and the size of the high school.

The sources of support are largely subscriptions and advertising. There is sometimes objection to having recourse to advertising. Concerning this objection Votaw has the following to say:²

¹ Nixon, *High-School Publications*, p. 52, Table XXVIII, a master's thesis on file in The University of Chicago Library.

² Lorenz D. Votaw, *The High School Paper*, p. 34, a master's thesis on file in the University of Missouri Library, 1922.

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The subscription payment alone will not finance a high-school paper unless a high rate is charged. This would not be in harmony with the object of a high-school paper, since it would cut down the circulation, and then it would not go into the hands of the students as desired. The only other method by which advertising could be dispensed with is for the board to finance the paper. Of all the schools [in a large number] investigated only three . . . were found with the board paying the entire cost. This method . . . seems out of question for the great majority of high schools, so it can be safely said that the only way to keep a paper financially sound is by accepting advertising.

Possibilities for school papers in small high schools. The publication of an annual is more often attempted in small high schools than is the publication of a paper. The literary monthly magazine is seldom undertaken in these schools. In view of the admittedly more pervasive values of the paper, it is unfortunate that its publication is not more often essayed in small schools in preference to the annual.

A variety of commendable efforts are being made in small schools to accomplish the purposes of a high-school paper where regular printed issues seem out of question. One form is the mimeographed periodical, of which there are now many examples in operation. The management of local papers are accustomed to welcome contributions from the high school, at least in the way of taking over a column or other space for "high-school notes." It is worth mentioning in this connection that the smaller the community the larger the proportionate place of the schools in community interests. This is a fact deserving consideration in connection with the use of space in the local paper. An interesting innovation observed by the writer in a small junior high school was a group of large bulletin boards organized after the manner of a newspaper. These boards were assigned a name characteristic of school papers. Each board carried its special type of content, such as news, editorial, etc. The content was renewed weekly, there being a given hour on a given day when a new "issue" appeared.

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IX. PUPIL PARTICIPATION IN SCHOOL CONTROL

The recent shift in the concept. The earlier efforts to give high-school students a voice in the control of school affairs were usually called "student government" or "student self-government." In recent years the tendency has been to designate them as "student coöperation" or "student participation" in school control. The shift in name has been parallel with the shift in confidence in what is feasible. Accumulating experience is clearly favoring coöperation or participation rather than complete self-direction by the student body, this being in line with the conviction that the membership of an immature student body is not capable of complete self-direction. The field of participation most often proposed in accordance with this appreciation begins with the allied activities, where it is felt that student initiative ought naturally to operate first. As experience is gained and efficiency is achieved by students, the coöperative arrangement may be extended to disciplinary and other social concerns.

Values claimed for coöperation in control. The values ascribed to student coöperation in school control are notably coincident with the values claimed for all allied activities as reported in section II of this chapter. The extent of coincidence is doubtless in considerable part owing to the somewhat prevalent belief, just mentioned, that the proper area of first application of coöperation is in allied activities. The coincidence is especially marked for the social values, which in scope and character, correspond closely with the values classified as civic-social-moral in section II. There is some coincidence also in other values.

Some writers in this field mention social and moral values in broad generic terms; others do not stop here, but particularize to some extent. They speak of social training through actual participation in group life, training in initiative and for leadership, training in coöperation or for "fol-

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lowership," training for citizenship in a democracy, and improvement of school discipline and spirit. They refer also to the inculcation of social virtues, such as responsibility and self-control. Other values alluded to are the improvement of scholarship, better administration of funds for allied activities, improvement of relationships with the home, and recognition of adolescent interests.

Obstacles to efficient operation. Most writers do not stop at making claims for student coöperation in control, but go on to discuss hindrances and to recommend practices and organizations they have found useful in offsetting the hindrances to efficient operation and in accelerating the achievement of the values. Teachers, they say, are often unsympathetic. Sometimes there is overdirection by the faculty. Pupils, too, because of the traditions of complete faculty domination, are unprepared to play their part, are not interested, or tend to shirk responsibility. Sometimes it is the misconception of complete self-government that forestalls success; at other times the machinery of government is too elaborate and artificial.

Principles of organization and establishment. The recommendation most frequently made on the plan of organization is that it be coöperative as between faculty and pupils. It is pointed out that although some plan of organization is essential, the plan is less important than the spirit which dominates. The organization should be as simple as possible, its methods of operation as direct as possible. The school head should retain veto power on acts of students, but he must be sparing in exercising this prerogative, as frequent use will convince students that they have the form of participation without its substance. Disillusionment of this sort will bring collapse of the plan as far as effective functioning is concerned. The principal and faculty ought not to relinquish control in any matter until they have some confidence that pupils are prepared to carry the responsibility. It is sometimes contended

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that the plan is legitimated in the minds of pupils and faculty by having its affairs go forward during the school day.

Plans of pupil coöperation in school control should not be instituted before both the faculty and the pupils have been carefully prepared for it. All should be made conversant with the details of the plan. It should be clear to principal and teachers that the plan does not contemplate freeing them from responsibilities, and that the guidance essential to its successful establishment may even at times involve greater effort on the part of the staff than would be involved in complete faculty domination.

Plans of organization for pupil coöperation. Plans of organization suitable for student coöperation in school control have already been illustrated in section VI of this chapter, where organization for administering allied activities is discussed. Inasmuch as the natural first field of operation of pupil participation is in these allied activities, it would be gratuitous and even confusing to set up a duplicate organization for present purposes. As participation is extended, it will be a simple matter to add to such an organization the features that are required to compass the wider scope of function.

X. THE DEAN OF GIRLS

Functions of the dean of girls. Were space available it would be desirable to deal with other large groups of allied activities such as debate, literary societies, musical organizations, subject clubs, etc. It is assumed, however, that the general treatment with which the chapter opens, together with the treatment of athletics, publications, and student coöperation in control, will suffice for purposes of illustration. This section will be devoted to consideration of the dean, or adviser of girls, a functionary appearing with rapidly increasing frequency in the modern high school. This position bears important relationships to the extra-curricular life of the

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school, but its obligations, as will be seen, extend far beyond them. Partly because of the difficulty of disentangling the extra-curricular relationships from others, but more because of the importance of the position as a whole, the deanship will be considered (even though very briefly) comprehensively rather than in a single aspect.

Perhaps it should be said that there is no intent to imply that there are no problems and needs where boys are concerned analogous to those that call for a dean of girls. These problems and needs exist, and some schools have undertaken to provide for boys the special oversight that has been accorded to girls. However, because we have had more experience with the deanship of girls, there is more to be presented concerning it.

The function of the dean of girls, when expressed in general terms, is that of the general supervision of the school life of girls, both as individuals and in groups, with the aim of producing by the sum of her contacts a finer type of girl and woman than would otherwise be possible. She helps girls at a time of significant change — adolescence. She can be especially useful in a period of development of the secondary school during which, owing to popularization of education, the diversity of the girls enrolled is increasing — a period which, at the same time, is one of social change, characterized by enlarging freedom and independence for women.

Put in more specific (although not always concrete) terms, the scope of functions of the dean is as shown in the following list. The list includes only those functions found to be frequently mentioned in the literature dealing with the position :

Social-moral functions

1. Socialize the student body.
2. Prepare girls for leadership.
3. Train girls for coöperation and "followership."
4. Guide in moral and ethical matters.
5. Encourage consideration of ideals.
6. Sponsor welfare work among students.

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7. Advise girls on religious problems.
8. Advise as to "conduct."
9. Serve as an authority on manners.
10. Advise girls in matters of dress.
11. Foster proper relationships and attitudes between the sexes.
12. Handle disciplinary cases among girls.
13. Develop school spirit.
14. Supervise social activities of the school.
15. Advise girls with difficult problems in the home.

Other functions

16. Supervise in physical matters; for example, health, athletics, and cleanliness.
17. Advise on use of leisure time.
18. Guide educationally and vocationally.
19. Encourage scholarship.
20. Foster proper teacher-student relationships.
21. Check on absence and tardiness.
22. Arrange for assistance of students with financial problems.
23. Develop home and school relationships.

The items in the list are far from mutually exclusive, the aim being faithful representation of the literature represented rather than correctness of classification. They are, however, suggestive of the large opportunities for service in this position, a service that must be only indifferently rendered without centralizing the responsibility for it in some one person.

Qualities demanded of a dean of girls. It should be already obvious that a person of much more than ordinary parts will be necessary to discharge so many and such diverse functions. A canvass of the characteristics suggested finds those most frequently recurring to be as follows:

Training and experience

Adequate training and scholarship

Experience as a teacher

Experience in advising girls

Understanding of girls of adolescent age

Special knowledge of the education of women

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Personal qualities

Leadership

Coöperation

Pleasing personality

Social poise

Strength of character

Tact

Sympathy

Good judgment

Resourcefulness

Sense of humor

Neatness

Among others less commonly suggested are acquaintance with problems of the home, ability in athletics, business experience, cordiality, good health, and personal attractiveness. An interesting conflict of characteristics asked for — youth by some writers and maturity by others — is harmonizable by calling for the possible combination of the spirit of youth with the wisdom that comes with years.

Principles applicable to the work of the dean of girls. Despite the brief period for experience with this position, certain principles of practice have already had opportunity to make their appearance. Among these are the desirability of official recognition of the position, allowance of time from teaching adequate for the discharge of responsibilities, the setting up and putting in operation of a definitely constructive program of activity instead of permitting energies to be spent exclusively on odds and ends of administrative routine or on remedial work, endeavors to secure a widespread distribution of responsibility to the girls of a school, and avoidance of rigidity in plans of procedure.

The dean's avenues of service. The means through which the dean of girls operates to be of service are many. Those more often mentioned are an organization of girls in the high school, special assemblies or other meetings of girls, personal interviews in which confidences are possible, visits to homes

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of girls, coöperation of community agencies, and discussions of related problems before the public. Since practically all deans have some teaching responsibilities, it is possible also to make direct and indirect use of the contacts with girls that this work affords.

QUESTIONS AND PROBLEMS

1. Justify or criticize the refusal of a teacher to assume responsibilities in connection with allied activities on the ground that the contract entered into specified no such responsibility.

2. Describe the extra-curricular activities and their organization and control in some high school of your acquaintance. Discuss their adequacy or inadequacy.

3. How would the authorities in a high school go about it to secure a chapter in the National Honor Society?

4. Suggest a feasible and desirable method of getting under way a subject club; for example, in science or in French.

5. Discuss the relative merits of inter-school and intra-school athletics.

6. What is to be said pro and con on interscholastic athletic contests for girls?

7. Discuss the problem of whether the school should give credit for membership in the school band or participation in interscholastic debate.

8. What is the law in your state concerning secret societies in high schools?

9. Can you see any reason why the high school should take a different attitude toward fraternities and sororities from that taken in the colleges?

10. What influence would a vigorous constructive development of allied activities in a high school have on any tendency to establish secret societies?

11. Make a special study of some one of the classes of allied activities listed on page 596 which has not been dealt with in subsequent portions of this chapter.

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XVII

COMMUNITY RELATIONSHIPS

I. COÖPERATING ORGANIZATIONS

Community relationships important. Problems involving relationships of the secondary school to the community have come up for consideration in other parts of this book. They were touched on near the close of Chapter III, where recommendations were made for counteracting the influences toward elimination from school. The purpose of "community service" was reported in Chapter IV as sometimes proposed by those whose statements were used in formulating the aims and functions of secondary education. They arose again in the discussion of the rural-high-school problem in Chapter VIII and at other points. They will come up again in subsequent chapters in dealing with the social aspects of the teacher's position, the code of professional ethics for educational workers, and other matters. Relationships of the school to the community are withal so important as to warrant in addition the special treatment to be accorded them here. These are considered under the headings (1) coöperating organizations, (2) purposes and means of publicity, and (3) services of the secondary school to the community.

Parent-teacher associations. The parent-teacher-association movement is pregnant with significance for both the elementary school and the secondary school. It has experienced a remarkable growth in recent years, as evidenced by the facts that the membership of state associations in 1924 was about two thirds of a million, that state-wide organizations were in that year to be found in every commonwealth,

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and that the National Congress of Parents and Teachers at that time included all states excepting Nevada.¹

The activities of parent-teacher organizations and other organizations, such as "school improvement" societies, and "patron's leagues," associated with elementary and secondary schools manifest great diversity. Sometimes these activities are restricted to (1) efforts at bringing parents and teachers together for social intercourse. There is much to be gained from merely having the parents and teachers of the pupils become acquainted and mingle in social intercourse. But under proper direction much more than this can be accomplished. (2) A type of activity which is often found helpful is that of using some of the meetings of these associations to make the parents acquainted with the practices and policies of the school, the place and content of newer courses and subjects with which parents have little or no acquaintance, and the like. Parents have shown great interest in such presentations, and in consequence have been able afterwards to coöperate more intelligently with the school. (3) Another constructive type of activity is that of undertakings to add to the facilities and services of the schools or to improve them. Miss Lombard reports that parent-teacher associations generally take the stand that equipment for public schools should be provided out of public funds, but that they have often met emergencies rather than deprive their children of the proper means of securing an education. This is especially necessary during a period of retrenchment in the use of public funds for educational purposes. Miss Lombard lists a variety of methods of raising funds for such needs, apart from per capita dues, which have been resorted to by such associations. Among these are salvage shops, bazaars, fairs, food and candy sales, and moving-picture shows. Among items for which funds raised have been expended are libraries, school lunches, school and athletic equipment, and health programs. These asso-

¹ Ellen C. Lombard (9).

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ciations have also been known to establish scholarship foundations and loan funds by which many pupils have been kept in high school or sent to college.¹

The use by such associations of tactics virtually obstructive of school progress is not entirely unknown. This sometimes happens when the leadership is placed in wrong hands. It is probable that this cannot always be avoided, even when intentions are unquestionably sincere. This has led some principals and teachers to feel that parent-teacher associations are more provocative of harm than of good. On the other hand, the conviction gains ground that, because of the better understanding which grows up between home and school and the facilitation of school progress brought about both directly and indirectly, parent-teacher organizations may well receive more encouragement than they have had, both on the part of educational workers and of laymen.

Other coöperating organizations. But parent-teacher associations do not include all organizations which have developed coöperative relationships with the public schools, including high schools. Ferriss, reporting a study of relationships of rural school and community, mentions a second group "made up of those organizations in the community the primary aims of which are the promotion of activities other than those of the school but which give more or less attention to certain types of school problems."² Examples of these are the grange, farm and home bureaus, business men's associations, and the community church. The difference between the rural and urban situation in this regard is the greater number of analogous organizations in communities with larger populations and therefore the greater reservoir of coöperative resource upon which high-school principals and teachers in these communities may draw. Some of the ways in which the organizations reported by Ferriss have been helpful to the rural high schools are improving school playgrounds and

¹ Ibid.

² Ferriss (4), p. 33.

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providing equipment for these, supplying equipment for athletics, purchasing an athletic field, giving prizes for school exhibits and school fairs, furnishing equipment for the work in agriculture and home-making, establishing school-health examinations and maintaining a school nurse, supplying the school with first-aid equipment, endowing the school library, purchasing pictures for classrooms and auditorium, founding scholarships, and managing and financing lyceum courses. These activities are similar to the third type referred to above as being participated in by parent-teacher associations.¹

A regrettable element of the situation disclosed by Ferriss is the small proportion of those in charge of rural high schools who avail themselves of the opportunities afforded in parent-teacher associations and in other organizations whose coöperative proclivities might thus be utilized. One may state with assurance that principals and teachers in many larger high schools likewise often fail to avail themselves of the same proclivities in analogous organizations — economic, social, and other — in the larger communities.

II. PURPOSES AND MEANS OF HIGH-SCHOOL PUBLICITY

The rôle of high-school publicity. One cannot give thought to problems such as are touched on in the foregoing section without being impelled to consider at least briefly a problem closely related to it — namely, the question of high-school publicity — or at least those phases of it which pertain to its purposes and the means to be used. Most of the functions of publicity as it concerns secondary education are implicit in the following quotations from editorial comment in an educational journal:²

Communities often fail to show proper appreciation for their high schools for no other reason than that they are unacquainted with the facts. They think of the high school as it was a decade

¹ Ferriss (4), p. 35.

² *School Review* (October, 1923), Vol. XXXI, p. 565.

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or two ago and fail to visualize it as it is today. They do not sense the problems created by the rapid development of secondary schools and the modifications in curriculum and organization brought about by the demands of changed conditions. As a result, in many communities the high school is under fire because the citizens in general do not know their school.

Plans for disseminating school information as a means of keeping the community informed about its schools have been developed by wise school officials in a number of centers. Such officials maintain that real educational progress is possible in no other way. They realize that forced *ex post facto* explanations of school happenings and of school expenditures are never conducive to the development of wholesome public opinion or community morale. School information should be given out through the press and the school, in advance and in official form, with full confidence that the community will be served by any devices which help it to know its educational institutions.

A list of the "aims" to be served by high-school publicity as set down by Edmonson is as follows:¹

1. To cause a larger number of the children in the grades to plan to enter high school.
2. To induce a greater fraction of the high-school pupils to continue until graduation.
3. To interest a large number of the high-school graduates in courses in higher institutions.
4. To inform the parents concerning the high school in order (a) to have their support in an effort to realize the aims stated above, (b) to bring about more coöperation and good will in the handling of pupil problems, (c) to prepare the way for changes requiring community support.
5. To create a greater friendliness, a more intelligent understanding, and a more liberal attitude on the part of the public toward the school and its problems.
6. To increase the confidence of the teachers, pupils, parents, and public in the importance and value of the work carried on in the high school.
7. To guard against harm from attack by unfriendly interests.

¹ J. B. Edmonson (3), p. 29.

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The list may be seen to be more comprehensive than the concept of purpose quoted from the *School Review*. Perhaps they are all implicit; but the aims apparently left *unexpressed* are those designated as 1, 2, 3, and 4 (a) and (b) — that is, those pertaining directly to inducing pupils to continue their education and parents to take on a coöperative attitude in the handling of pupil problems.

The avenues of high-school publicity. At the time he set down the aims of high-school publicity Edmonson also listed some of the media utilizable for it. The scope of the aims Edmonson proposes should be borne in mind while the reader examines this list of media:¹ (1) the news columns, (2) the editorial columns, and (3) the advertising sections of local newspapers; (4) attractive posters in public places; (5) exhibits in school buildings and (6) exhibits in down-town centers; (7) bulletins, pamphlets, and school papers; (8) letters to prospective pupils, to all withdrawals, and to their parents; (9) illustrated lectures and special talks before public audiences, clubs, labor unions, and church societies; (10) public performances by musical clubs, public-speaking societies, dramatic clubs, and athletic teams; (11) special talks to seventh-grade and eighth-grade classes; and (12) active participation in community affairs by members of the teaching staff.

In commenting on (1) and (2) it may be said that those in control of local papers are usually sympathetic to school affairs and to giving them recognition in their publications. In an investigation made by Grinnell of newspapers in Minnesota it was found that much space was allotted to news and other matter concerning the schools. He also found that editors were favorably disposed toward educational interests. Referring to the third classification one may say that school

¹ Edmonson (3), p. 30.

² John E. Grinnell, *Newspaper Publicity for the Public Schools of the State of Minnesota*, a master's thesis on file in the University of Minnesota, 1925.

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boards do not often look with favor on the purchase of advertising space, especially as the schools receive generous allotments of space in the news columns. Occasions may arise when purchase of space is desirable. Some school systems have issued attractive literature descriptive of the opportunities for secondary education in the district — literature intended to encourage a larger proportion of the youth to continue their education, to assist in educational guidance, or to develop a more favorable attitude on the part of the public toward school policies. To the list of media of publicity as given should be added, of course, the great possibilities of the parent-teacher associations and of other coöperating agencies, which have already been discussed.

III. SERVICE TO THE COMMUNITY

The secondary school as a community center. Thus far in this chapter relationships have been considered that contemplate benefit *from* the community *to* the school. In a sense this is looking at the relationship from one side only, ignoring the service to be rendered to the community by the school. Of course, in a broader sense, such a one-sided point of view is impossible, since the school should hardly be thought of as an end in itself. It is maintained primarily for the training of youth, and this is a contribution to community welfare as well as to individual welfare. At the same time it is fair to ask whether the modern school does not have an even more direct contribution to make here and now to community life, through affording the opportunities of education, sociability, and recreation, not only to youth but to all the members of the community.

There has been in many quarters a conspicuous acknowledgment of this responsibility of schools, both elementary and secondary. In certain respects the development has been somewhat more rapid in consolidated and community

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high schools than in larger population centers. An example of vigorous growth on this side in the Eyota, Minnesota, Consolidated District was cited in Chapter VIII in dealing with the rural-high-school problem. Among causes for the vigorous development in rural and semirural territory is the dominance of a central school interest and approach to social homogeneity of the rural population as contrasted with the many competing interests and the greater diversity of the population in urban centers.

An interesting example of vigorous development in urban communities is that begun some years ago and still maintained in connection with the La Salle-Peru Township High School in Illinois. Special facilities were provided, an important unit being a "social center recreation building." This includes a large gymnasium, an indoor swimming pool, a men's clubroom, a large party room, reading and silent-game rooms, a meeting room, and an auditorium. There is also a director's office, an apparatus room, and locker, dressing, and toilet rooms. Out of doors there is a large athletic field, a playground, an outdoor swimming pool, and tennis courts. Under the supervision of a director especially employed for the purpose, a rich program of social and athletic activities is carried on during the entire year. There are conventions, lectures, dramatic performances, exhibits, community singing, dances, parties, clubs, festivals, individual reading, quiet games, picnics, and athletic contests of various kinds. This social center is especially valuable in the community being served, as the following quotation shows:¹

The three cities are typical industrial centers, each presenting most of the intricate problems of industrialism. Moreover, the majority of the industries are such as demand unskilled labor, which accounts in the main for the large number of immigrants. . . . As a result of the demand for unskilled labor, the mills and factories have always competed successfully against the schools,

¹ (6), p. 13.

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and the school mortality rate is exceedingly high. The demand for recreation has been particularly strong among this group of boys and girls. . . . Until the establishment of the Social Center, however, no attempt had ever been made by the public to provide recreation, supervised or otherwise, either for adults or children. As a result commercial recreation grew and flourished, with little attention being paid to its character.

Adult education. It is but a short step from providing the opportunities for entertainment and sociability for that portion of the population who have arrived at or are rapidly approaching adulthood to setting up opportunities for more or less formal education for them, a step that has been taken in a number of communities. This extends from teaching illiterates in the population to read and write, and meeting the needs of foreigners who seek Americanization, to training on higher levels for those who have had a number of years of formal schooling. With the recent welling up of interest in adult education in England and elsewhere we are warranted in anticipating that sometime soon — perhaps sooner than we can conjecture — large numbers of those who are past high-school age and far into maturity, especially in our own country where facilities for education above the elementary level are widely and generously distributed, will desire to lay hold of these facilities in order to maintain themselves in an atmosphere of intellectual growth and education. Despite the prevalence of free secondary education we still have much to desire along these lines. An example of vigorous development is shown in the situation in the Chaffey Union High School and Junior College at Ontario, California. Merton E. Hill, the principal, reports that during a year (1924-1925) when the total attendance in high school was 1041 and in regular junior-college classes was 190, the total number of adults in afternoon and evening extension classes was 2053.

Secondary schools and the welfare of the community at large. Although it may seem trite, it is desirable to revert again to

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the possible contribution of the secondary school to community welfare in the broader sense referred to in the opening paragraph of this section. This contribution is frequently mentioned, but it may be doubted whether it is not, more often than otherwise, thought of solely as a by-product or incidental value accruing from assisting the pupil to self-realization.

Denmark, in its folk high schools, provides an instance of a system of secondary schools instituted and operated primarily to enhance the cultural welfare of the rural population of that country. It is the testimony of many observers that these schools have over a long period been serving the end for which they were established. The main features of their administration have been adapted to making this contribution. They are maintained during five winter months for young men and during summer months for young women. The ages of the students range from eighteen to twenty-five, few of those attending having had formal school training since completing the work of the elementary school. Although the curriculum recognizes to some extent the practical needs of farm and home life, it stresses a general or liberal training designed to add dynamically to the cultural welfare of a rural population.

These details are not mentioned to commend them for imitation in our American system. They may lend themselves in part to adaptation to needs in some sections of our country, as has at times been recommended by American visitors to Denmark, but this is not the chief purpose in referring to them here. This purpose is merely to reëmphasize what must be constantly kept in mind while planning and piecing out the structure of a system of public schools: that they should operate to contribute to the welfare of the community at large, and that the endeavor to provide the opportunity for the individual to realize himself — which is also important — be conditioned by the requirements of community welfare.

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QUESTIONS AND PROBLEMS

1. Cite from your experience any activities beneficial to a high school that are engaged in by parent-teacher associations.
2. Cite any instance of obstructive activities of a parent-teacher association.
3. Should teachers endeavor to attend regularly the sessions of the local parent-teacher association?
4. Should principals or teachers direct the affairs of such associations?
5. What arguments other than monetary may be used to induce larger proportions of young people to attend high school?
6. Suggest methods of creating a favorable opinion of the high school in a community where the editor of the only paper is unfriendly.
7. With a view to suggesting evening and extension courses study the population over eighteen years of age in a community being served by some high school.

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XVIII

THE HIGH-SCHOOL STAFF

I. STAFF PROBLEMS

Of wide scope and significance. The intimate dependence of the efficiency of a school on the adequacy and efficiency of its staff is so obvious as scarcely to require mention. Consideration of the problems that concern this dependence is not so common as acknowledgment of the relationship. These problems are of wide scope, bearing as they do on the working load, inclusive of teaching and other responsibilities of the members of the staff; on their training and experience; on their relationships to superiors, colleagues, students, and community; on their professional growth after entrance in the profession; and on remuneration. The problems relating to the principalship alone are also of great moment.

The concerns of the chapter. These problems are so wide in scope as to preclude complete discussion of all; moreover, the factual basis for the comprehensive treatment of all is not at hand. Some, however, will be considered, the topics under which exemplification is afforded being as follows: (1) the teaching load, (2) the spread of instructional responsibilities, (3) the "coöperations," (4) preparation and experience, (5) other professional relationships, (6) salaries, and (7) the principal.

II. THE TEACHING LOAD

Number of daily recitations. The working load of high-school teachers may be thought of as divided into two constituents, teaching and other, or noninstructional, activities.

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Not that these other activities are strictly noninstructional; but for the want of a more satisfactory name they are so classified, to distinguish them from those activities conventionally thought of as being closely associated with teaching. A common method of describing the instructional load is to refer to it as the number of recitations conducted daily or weekly by a teacher. Among the studies of teaching load following this method is one made as a part of a larger investigation by Davis for the North Central Association.¹ He found (Fig. 75) that of the schools represented in the study about a fourth required for all subjects four such recitations daily; almost a half, five daily; almost a fourth, six daily; and only 2 per cent as many as seven. When the load is considered by subjects and subject groups a good deal of variation is found. For example, for English the proportion teaching five periods was correspondingly large. The marked tendency in mathematics is for more recitations. For science the tendency is for fewer recitations, the difference being explicable through the laboratory periods. In subjects such as science and the practical arts, on account of this large laboratory constituent, the number of periods taught is probably larger than for non-laboratory subjects.

In the schools represented the length of recitation periods is forty-five minutes in almost four fifths (79 per cent) of the cases, 14 per cent report period lengths of fifty to sixty minutes, and only 7 per cent report periods over sixty minutes in length. The smaller numbers of recitation periods reported above are doubtless in much larger proportions in the schools having the longer periods.

It will be well in noting these practices to bear in mind that these schools on the North Central Association list are to some extent selected as to size and standards met. It may be assumed that schools not on the list, being usually smaller or not qualifying on the standards applied by the association,

¹ Calvin O. Davis (4), pp. 30-56.

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would show larger percentages of teachers with the heavier teaching loads when measured by the number of recitations conducted daily.

Number of pupil-recitations per teacher. Another way in which the teaching load is sometimes described is by the

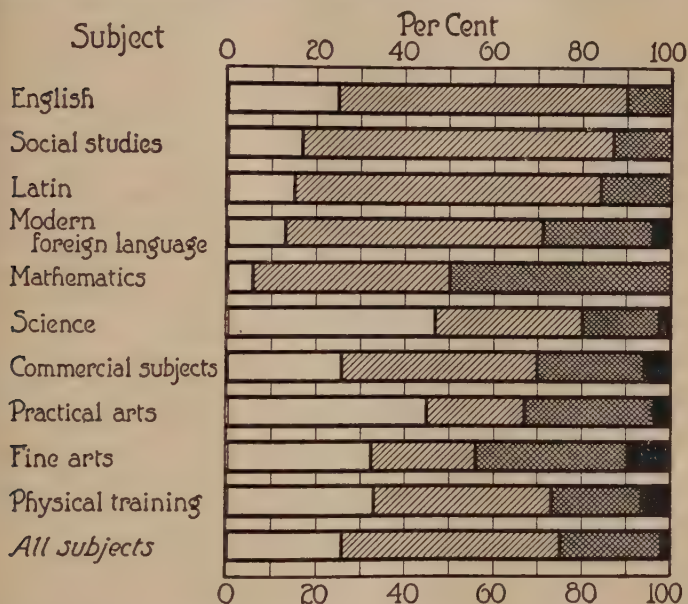


FIG. 75. Percentages of teachers in North Central high schools reporting four, five, six, and seven recitations daily. (In outline, four recitations; single-hatching, five; crosshatching, six; black, seven)

number of pupil-recitations represented by the instruction given. A pupil-recitation is one pupil taught during one class period. One pupil during the week would mean 5 pupil-recitations. If there were 25 pupils in a given class, this would mean 125 pupil-recitations. If a teacher conducted 5 classes of this size, this would be a total of 625 pupil-recitations.

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Certain averages representing teaching loads in city high schools in several sections of the country are shown in Fig. 76. When the teaching load is measured in this way it does not vary widely for the academic subjects — English, foreign languages, history, mathematics, and science. There is much more variation among other subjects, ranging from 462 for domestic art to almost exactly twice this number for physical training. The subject nearest physical training in this respect is music, for which the average is 729. The subject nearest to domestic art is shop, with an average of 483. The difference between these two pairs of subjects is accounted for primarily by the size of classes. It is, however, influenced by the usual number of classes taught as this has already been reported. The laboratories for domestic art and shop are usually limited in equipment and cannot accommodate as large a number of pupils as can other classrooms.

Since all the high schools represented enrolled more than a hundred students, and half enrolled more than a thousand, it may be understood that in the American high school more nearly typical in size the teaching load, when measured in this way, would be markedly smaller. The much smaller classes in high schools with enrollment of from fifty to a hundred students make for a large reduction in the average, notwithstanding the somewhat larger number of classes per teacher in such schools.

Factors in the teaching load. Citations from studies of the magnitude of the teaching load when this is measured by the number of recitations or by the number of pupil-recitations per week raises the question What are the factors making for a heavy load? A number of variables may be set up as hypothetical factors, among them not only the number of class periods and the number of students in each class, but also the year place of the work (for example, first-year high school or fourth-year high school); repetition of the same course in concurrent sections, as when the same teacher con-

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ducts two or more sections of American history during the same semester; the mode of presentation — whether recitation, supervised study, or laboratory; and the number of years of experience of the teacher, either in high-school teaching or in the specific subject or subject group represented.

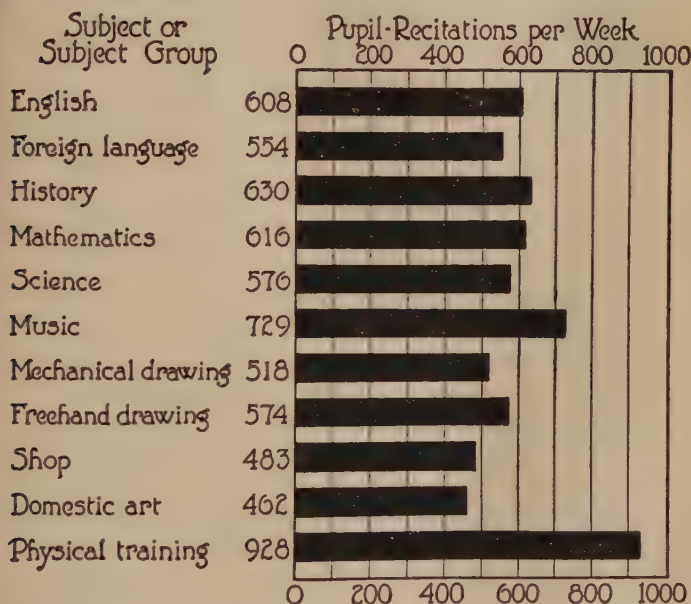


FIG. 76. Teaching load in pupil-recitations per week in high-school subjects of study. (Averages of the average numbers of pupil-recitations reported for several sections of the country in "Teaching Load in 136 City High Schools," *City School Leaflet No. 9*, United States Bureau of Education, June, 1923)

It is possible to illustrate, at least in part, the influence of most of these hypothetical factors by referring to an unpublished study by Reichard¹ in which he analyzed reports by one hundred and twenty-six teachers in high schools of

¹ C. E. Reichard, a graduate student in the University of Minnesota. See also (16).

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Minneapolis on time actually spent on all professional activities during one school week. The reports were made on a form which permitted computation of the average amount of time devoted to the class period. When this study was made all recitation periods in the high schools represented were from 42 to 45 minutes in length. For the purposes of this investigation they were all considered to be 45 minutes in length. For purposes of comparison the average time spent per period during the week in preparation, in correction of themes, laboratory notes, or other written work, in conferences with students enrolled, and the like was added to this basic period. For instance, if the average amount of such outside work for a class in economics was 44 minutes, the total load for that class was set at 89 minutes.

1. The average expenditure of time computed in this way for more than 3300 periods of instruction was 77 minutes, which is an average of 32 minutes — approximately a half hour — devoted outside the class period to the courses represented. The influence of the *subject or subject group* as a factor may be seen in the following averages: English, 99; foreign language, 74; social studies, 92; mathematics, 88; science, 75; commercial, 74; industrial (including home economics), 58. English and the social studies are seen to require a markedly larger expenditure of time than other subjects, mathematics somewhat more than an average amount, science and commercial work a bit less than an average expenditure, and industrial subjects much less. In evaluating the situation in science it is essential to bear in mind that laboratory and recitation work were merged in the tabulations for the reason that for some courses the work was administered in five double periods during the week. The average for strictly laboratory work would have been less than for class work proper. By following the practice of requiring a considerably larger number of periods of instruction because of the constituent of laboratory work the system was

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asking teachers of science to give a somewhat larger average amount of time than of teachers in certain other academic lines. Commercial subjects include a variety of types of work, some exclusively laboratory, requiring little time outside the class period, and some not unlike the social studies in their exactions. These differences are sometimes recognized in assigning instruction in this field. The expenditure of less time in industrial subjects is explained by the almost exclusive use of laboratory procedure in the fields represented.

2. The influence of the *year place* of courses may be seen in the averages 76, 75, 78, and 84 for first-year, second-year, third-year, and fourth-year work respectively. There is no appreciable increase until the fourth year is reached. Subject groups from which this increased average in the last year is most notably reflected are English, mathematics, and the social studies. Except for advanced courses the expenditure of time in mathematics is very near the average for all subjects, being 75 minutes.

3. In order to inquire into the influence of the *size of class*, Reichard grouped the sections in three divisions: classes enrolling from 1 to 17 students, classes enrolling from 18 to 29 students, and classes enrolling 30 or more students. With classes thus divided, the expenditures of time per period are, respectively, 72, 77, and 84 minutes. This means an average difference of only 12 minutes between the smallest classes represented and the largest, somewhat discrediting the belief that the number of pupil-recitations alone is an adequate basis on which to adjust the high-school teaching load. After all, since there are no very large classes in our secondary schools, this influence is prevented from being momentous.

4. The periods of instruction investigated were distributed as to the frequency of *repetition in concurrent sections*, that is, as to the number of sections of the same course which individual instructors were teaching during the term. The

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average time expended where only a single section of a course was being taught was 75 minutes; the averages where concurrent sections were being taught were as follows: two sections, 85 minutes; three sections, 75 minutes; four sections, 80 minutes; five sections, 85 minutes. The relationship seems to be casual rather than otherwise, and is not in support of the rather general belief that teaching a number of sections of the same course tends materially to reduce the teaching load. This surprising finding is in accordance with that obtained from a somewhat similar investigation made into instructional loads in the University of Washington.¹ Any small difference in favor of such repetition may be compensated for by differences owing to the larger classes likely to obtain where repeated sections are concerned.

5. The influence of *years of experience* on the time expended per period could not be as well investigated as other influences, inasmuch as the rules of appointment to the Minneapolis staff call for experience before admission to the system. It was possible, however, to inquire into the effect of experience *with the courses* represented. The average time expended for the first year of experience in a course was 84 minutes; for the second year, 94 minutes; for the third year, 74 minutes; and for the fourth year or more, 74 minutes. Although the trend is not completely consistent, it appears that instruction in a course after the second year involves a smaller average expenditure of time than does the first or the second year of teaching contact with a course.

6. As far as the *mode of presentation* as a factor was canvassed in Reichard's study it has been considered above while discussing the subject as a factor. Portions of instruction conducted by the laboratory method require smaller expenditures of time per period.

Judging from the data available it may be concluded (only tentatively, however) that the factor most influential after

¹ Koos (19), p. 41.

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the number of classes or periods taught is the subject or subject group. After this factor, and in an important sense a part of it, is the mode of presentation, as far as concerns recitation or laboratory, which are the only procedures here definitely represented. Other factors are less influential, though operative to some extent; these are the year place of a course, size of class, repetition in concurrent sections, and years of experience in the work.

Adjusting the teaching load in accordance with the factors. The average number of hours per week devoted to teaching work both in and out of class by the instructors represented is 34.8. At the average of seventy-seven minutes per period for all work, this is approximately 27 periods, or an average of 5.4 periods per day.

If the average number of hours devoted to teaching work and the average time expended per period, as reported, may be regarded as norms, we have at least a partial basis for evaluating practices usual in assigning loads to instructors in high schools. It appears, for example, to be unfair to assign the same number of periods to teachers of English as to teachers of foreign language or first-year and second-year courses in mathematics. The average time expended in the three fields being 99, 74, and 75 minutes, respectively, teachers of English in the situation represented here should not be expected to carry more than 20 or 21 periods per week, whereas teachers of foreign language and elementary mathematics can carry 27 or 28 periods. Teachers of courses exclusively laboratory, such as the industrial arts, can carry 35 to 36 periods. Teachers of senior courses exclusively should carry somewhat fewer periods than those giving courses only on the lower levels. Other illustrative applications for which space cannot be spared will occur to the reader. If concessions cannot be made on the teaching load they may be made on that portion of it subsequently to be designated as the "coöperations."

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The averages cited do not provide a complete basis for assignment of teaching loads. For this basis we shall need to await the results of more extended investigation of the problem. They are, however, suggestive and constitute a challenge to some of our usual beliefs, for example, as to the influence of size of class or of repetition in concurrent sections. Important aspects left out of account are the influence of the lengthened periods and of modifications of instructional procedure which ordinarily accompany these lengthened periods — that is, directed or supervised study. They must, moreover, be considered in conjunction with the data concerning other professional activities of teachers, that is, the "coöperations," or noninstructional load. These will be discussed at a later point.

Partial accommodation to differences found will be seen in the percentages of teachers in North Central high schools reporting the several numbers of recitations daily (Fig. 75, p. 639), showing that in the give and take of the practical school situation something like desirable adjustments are being made. In considering these data it must be remembered that what is shown in this figure is the number of "recitations" (or classes), not periods, per day. A practice out of harmony with the facts just presented is the similarity of teaching loads for foreign languages with those for English and the social studies. The larger load in mathematics is in harmony with the findings just reported. In considering the distribution for such subjects as the sciences and the practical arts it must be remembered that a "recitation," or class, often means more than a single period of instruction daily.

III. THE SUBJECT DISTRIBUTION OF THE TEACHING LOAD

The number of different subjects taught by individual instructors. No description of the teaching load can be regarded as adequate which does not take into account its subject

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composition; that is, the numbers and the combinations of subjects represented in the teacher's day. This phase of the problem is receiving increasing attention in recent years, as it well may, if one judges from the situation revealed in materials now to be presented. The first attempts at extended studies in this field were those of Koos and Woody¹ and of Hutson,² concerning, respectively, the high schools of Washington and Minnesota. The materials of both studies will be drawn upon for present purposes.

In determining what should constitute a "subject" both studies followed the usual lines of cleavage of departments in colleges, and accordingly each of the following was regarded as a subject: English, mathematics, Latin, Greek, German, French, Spanish,³ history, political science, economics, sociology, chemistry, physics, botany, zoölogy, biology, physical geography and geology, astronomy, physiology, agriculture, public speaking, home economics, shop and mechanical drawing, music, graphic and related arts, commercial subjects (other than economics), and physical education. By way of illustration it may be said that the teacher of sections in ancient, modern, and American history was considered as teaching one subject, as is the teacher of first-year and second-year English, or the teacher of algebra, geometry, and trigonometry.

Since large and small high schools represent different teaching situations, the teachers were grouped by the number in the staff of the high schools represented, Group I including those in staffs of 30 or more members; Group II, of 11 to 29 inclusive; Group III, of 10 or fewer. The Minnesota study included also another group (IV) in high-school "departments" of "state graded schools," high schools for the most

¹ Leonard V. Koos and Clifford Woody (23).

² Percival W. Hutson (13).

³ French and Spanish are often grouped in a single department in colleges of liberal arts, designated the Department of Romance Languages, but students are usually being prepared to teach only one language.

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part smaller than the "state high schools" exclusively represented in the first three groups. All the high schools of Group IV maintain four years of work, and almost all were on a special list prepared by the state department of education as being worthy of having, like the state high schools, their graduates admitted to the University of Minnesota without examination.

The situation as to the number of different subjects taught can be most briefly shown by quoting from Hutson :¹

The significance . . . appears as we compare the percentages of teachers in each group [in Table XLV] who were teaching the different numbers of subjects. In glancing over the columns for the four groups . . . we can readily sense the difference between teachers' programs in the small and the large high school. The fraction of those in Group I who were teaching one subject is nearly three fourths, but it drops to a little over half for Group II, to less than one third for Group III, and to a very negligible fraction for Group IV. The per cent of those in Group I who were teaching three subjects or more . . . was 7.8; of Group II, 17.1; of Group III, 41.4; of Group IV, 68.5. It is, of course, common knowledge that the teachers in the smaller high schools have to teach a wider range of subjects than those in the larger high schools. Table XLV shows just the extent to which this is true. And the figures must be startling to any person who realizes that in general the teacher-training institutions do not pretend to give adequate preparation . . . in more than one or two subjects.

It may be pointed out, in addition, that the teaching of more than one subject is not restricted to small high schools only. In the high schools of Group II and even of Group I large proportions of teachers were found to be giving instruction in two or three different subjects.

Recurrence of single-subject assignments. Special inquiry was made in both the Washington study and the Minnesota study as to the single-subject assignments in all groups of high schools. The findings were very similar and will be

¹ Hutson (13), pp. 6-7.

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illustrated by citing those for Minnesota. It appears that English, mathematics, home economics, shop and mechanical drawing, and commercial subjects are those most frequently taught singly, only the first two being usual "academic" subjects. The subjects appearing scarcely at all or not at all as single subjects form a long list indeed, among them the entire body of social studies and the sciences.

TABLE XLV. NUMBERS OF DIFFERENT SUBJECTS TAUGHT BY
INSTRUCTORS IN HIGH SCHOOLS OF MINNESOTA ¹

NUMBER OF DIFFERENT SUBJECTS	GROUP I		GROUP II		GROUP III		GROUP IV	
	Times Reported	Per Cent of Group	Times Reported	Per Cent of Group	Times Reported	Per Cent of Group	Times Reported	Per Cent of Group
1 . . .	219	71.3	193	52.2	104	30.2	3	2.4
2 . . .	64	20.8	97	27.7	98	28.4	37	29.1
3 . . .	22	7.2	38	10.8	81	23.5	34	26.8
4 . . .	1	0.3	18	5.1	49	14.2	29	22.8
5 . . .	1	0.3	3	0.9	9	2.6	19	15.0
6 . . .	—	—	1	0.3	3	0.8	4	3.1
7 . . .	—	—	—	—	1	0.3	1	0.8
8 . . .	—	—	—	—	—	—	—	—
9 . . .	—	—	—	—	—	—	—	—
10 . . .	—	—	—	—	—	—	—	—
More than 10	—	—	—	—	—	—	—	—
<i>Total</i>	307	99.9	350	100.0	345	100.0	127	100.0

Recurrence of identical combinations of subjects. The extent to which identical combinations recur where teachers give instruction in two or more different subjects may be illustrated from the data concerning high-school teachers in Washington. Of a total of 473 teachers in all three groups, 212 reported giving instruction in combinations of two, three, four, five, or more subjects. Only 65, or less than a third of these, were recurring, the remainder being distinct combinations. Naturally the two-subject and three-subject combina-

¹ Ibid. p. 9, Table I (in part).

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tions recur more frequently than others. However, less than a half of the two-subject combinations and just a ninth of the three-subject combinations appear more than once among all the teachers represented. All four-subject or five-or-more-subject combinations are different; that is, are nonrecurring. Among all the 57 recurring two-subject combinations, English and history appeared seventeen times, English and German eight times, and English and Latin six times. All other recurrences were scattering. Hutson's data for Minnesota disclosed fully as chaotic a situation in this respect (see Table XLVI). More extended inquiry into the relationships in the combinations (an investigation made possible by the larger numbers of teachers represented) discovered certain practices emerging which promise a good deal in the way of constructive possibilities. To be thought of in this way was the tendency for teachers to be assigned to groups of subjects closely allied, a tendency especially noticeable for the social studies and for the sciences.¹

Recommendations for improving the situation disclosed. The facts descriptive of the American secondary school represented in Chapter VI show a large proportion of small institutions. The proportion is not so large in some states as in others, but they all have the problem of the small high school in common. This means that the problem of a wide spread of instructional responsibilities over a variety of subjects is also a common one. It has been seen to exist even in the high schools with large staffs. Therefore it may be regarded as almost universal. It is especially acute for recent graduates of training institutions who, with little or no experience, go out for the most part to fill positions in the smaller schools, and to whom falls the task of teaching all the loose ends of a curriculum left after the teachers remaining over from pre-

¹ Hutson (12); see also, by the same author, "High-School-Science Teachers: a Study of their Training in Relation to the Subjects they are Teaching," in *Educational Administration and Supervision* (October, 1923), Vol. IX, pp. 423-438.

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ceding years have had an opportunity to select the subjects more to their liking than are some of those they have been teaching.

TABLE XLVI. PERCENTAGE OF THE TEACHERS OF EACH GROUP WHO TEACH SINGLE SUBJECTS¹

SUBJECT	GROUP I (307)	GROUP II (350)	GROUP III (345)	GROUP IV (127)
English	16.9	8.9	7.5	—
Mathematics	10.4	7.1	3.5	—
Latin	4.5	1.7	0.6	—
Scandinavian	—	—	—	—
German	—	—	—	—
French	2.6	0.9	—	—
Spanish	0.6	—	—	—
History	4.5	2.3	1.2	—
Political science	—	0.3	—	—
Economics	—	—	—	—
Sociology	1.0	—	—	—
Chemistry	1.3	—	—	—
Physics	2.3	—	—	—
Botany	0.3	0.3	—	—
Zoölogy	—	—	—	—
Physiography	—	—	—	—
General science	1.0	1.1	—	—
Physiology	—	—	—	—
Biology	0.6	—	—	—
Agriculture	0.3	2.9	0.6	—
Public speaking	0.6	0.3	—	—
Home economics	4.9	10.0	8.7	2.4
Shop and mechanical drawing . .	4.5	6.3	2.6	—
Music	1.0	0.9	0.6	—
Graphic arts	2.3	0.6	—	—
Commercial subjects	9.7	9.1	4.4	—
Physical education	1.9	2.3	0.6	—
Vocational civics	—	0.3	—	—
<i>Total</i>	<i>71.2</i>	<i>55.3</i>	<i>30.3</i>	<i>2.4</i>

There is no assumption that there are no exceptions to the desirability of having teachers in secondary schools give instruction in a single subject. To organize with complete

¹ Hutson (13), p. 12.

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specialization of instruction in the lower grades of junior high schools would certainly be inadvisable in a system where pupils have not been accustomed to departmentalization in the grades below. Many readers will also be able to recall teachers of their acquaintance who find relief and recreation in being able to turn away from a field of major to one of minor teaching interest. Then, too, correlation of subjects is much more likely to find place where teachers give instruction in more than a single field. But all these and other reasonable admissions are far from granting that we do not have need of much improvement with respect to subject distribution in the teaching load. When all is said, we still have a serious problem here. Some of the most obvious modifications to be recommended for improving the unsatisfactory condition disclosed have to do with the preparation of high-school teachers. These will come up for consideration in a later section of the chapter. Only those will be referred to here which concern the proper assignment of work to teachers, or the organization and distribution of a system of schools locally and in the state.

1. It should be clear that every effort must be made to keep the range of subjects for which a teacher is responsible to something like sensible proportions and as near the field of special preparation as possible. Those conversant with practices in many schools are aware that this is not always done. To do this it may sometimes be necessary to restrict the range of work offered. There could be little loss entailed by such a curtailment of the offering if the courses dropped are those for which the teachers are poorly prepared.

2. Appointment of new teachers to a high-school staff should not be made until a careful inquiry has been made into their preparation for all subjects in which they will be called on to give instruction.

3. Authorities in charge of secondary schools should cooperate with any efforts to standardize subject combinations,

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so as to have, for example, teachers of the social studies or teachers of science rather than of specific sciences. The needs of efficient instruction in all types of schools are likely soon to stimulate a vigorous development along these lines.

4. An important means of modifying the job so as to bring it within the range of possible performance is provision in the smaller communities for a six-year secondary school. As long as we have four-year high schools whose entire course offerings must be presented by two, three, or four teachers, just so long must we have a large proportion of teachers attempting to give instruction in subjects for which they have had insufficient preparation. This will be true despite our best efforts to standardize combinations. It must be manifest that in these smaller communities the extension of the high-school organization downward into the seventh and eighth grades will do much to improve the situation. The benefits of such reorganization are already being demonstrated where teachers of art, music, home economics, and manual training give instruction in their subjects both in the high school and in the upper grades. The reorganization referred to will carry this type of subject distribution to other fields, such as English, mathematics, the sciences, the social studies, etc. Certainly, teaching a single subject or closely related group of subjects over a wider range of grades is more nearly practicable than to teach a number of relatively unrelated subjects in fewer grades.

5. Another means of adjusting the job in order to make adequate preparation for it more nearly feasible is to discourage the multiplication of very small high schools. On account of the sparseness of population in certain areas we shall perhaps always need some such schools. To admit this, however, is by no means to admit the necessity for as large a proportion of very small high schools as are now to be found in some of our states. Small high schools mean small teaching staffs, and these in turn mean impossible subject combinations.

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IV. TIME SPENT IN COÖPERATIONS

The total working day of high-school teachers. The method used in Reichard's study (cited above) made it possible for him to compute for all teachers the total number of hours spent during a calendar week on all professional activities, including not only the more strictly instructional work inside and outside the class period as already reported, but also all other professional activities. When these numbers are divided by 5.5 — now the number of days in the working week in many occupations — the average working day for 126 teachers in the high schools of Minneapolis turns out to be 8.3 hours. When computed on the basis of a five-day week, the average is 9.1 hours. The range on this basis is wide, extending from less than 6 hours per day for some teachers to more than 15 hours for others. There are, however, small numbers of cases at these extremes, with more than three fourths of all between 6 and 11 hours. The averages (on the basis of five days and a half) for men and women are, respectively, 8.5 and 8.2 hours. This shows a somewhat heavier load for men, a difference shortly to be explained.

Averages computed in the same way by Frank H. Koos for smaller high schools in Minnesota are appreciably less but not strikingly so.¹ These are 8.0 hours for men and 8.1 hours for women. Data obtained for members of the faculty of the University of Washington on full-time instructional schedules show an average of 8.5 hours. The figures are all so nearly equal that one is disposed to accept the eight-hour day as an appropriate norm for those engaged in teaching. Incidentally, if these figures could be given publicity, they might do much to discredit the popular belief that the teacher's working day is five or six hours.

¹ Frank H. Koos, *A Study of the Teaching Load of 236 Minnesota High School Teachers*, a master's thesis on file in the Graduate School of the University of Minnesota, 1920.

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Time spent in coöperations. The average number of hours per week devoted to teaching has been reported above as 34.8. On the basis of a five-and-one-half-day week this is 6.3 hours per day. The difference between this and the average total working day of 8.3 hours is 2 hours. This is the average amount of time devoted to activities less strictly instructional — what Reichard called the “coöperations.” It is interesting to note that while the average teaching load per day for women is slightly larger than for men — the two being, respectively, 6.4 and 6.2 hours — this difference is much more than compensated for by a half-hour’s difference in coöperations in favor of the men. The averages in these for men and women are, respectively, 2.3 and 1.8 hours. The difference can probably be accounted for by the smaller number of men and the larger burden of supervision of extra-curricular interests of boys, who in this system make up almost half the student body.

These average amounts of time devoted to coöperations constitute no small proportion of the total working load. For all teachers they absorb 24 per cent — just a little less than one fourth — of all working time. The proportions for men and women are correspondingly above and below this, being, respectively, 27 and 23 per cent. Frank H. Koos found that for smaller high schools the proportion was somewhat less, being 21 per cent for all full-time teachers represented. The percentage for men was 26; for women it was 18.

Inquiry into the types of activities represented finds a great variety, among them study-hall supervision, hall duty, making records and reports, advisory work, committee meetings, teachers’ meetings, extra-curricular interests of students, work on professional courses, and general professional reading. A careful examination of data presented by Greenan, who investigated the time expended by teachers in one high school, shows the averages per week in activities other than the more strictly instructional to be the highest for clerical

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work in considerable variety, for extra-curricular interests of a number of sorts, for advisory work with students, and for general and departmental faculty meetings.¹

With the coöperations taking up on the average an approximate fourth of a teacher's working time, the kind, quality and quantity of these activities become matters of major importance. As soon as one recognizes that in the long run whenever a high-school teacher is employed only three fourths of his services will go to teaching proper and the other fourth to activities less strictly instructional, the question of the value of these activities imperatively demands an answer. For example, the fact that \$500 of each annual salary of \$2000 is absorbed in this way cannot be ignored. It lays on the teachers, and on the principal who is employed to provide professional leadership for them, an obligation of efficient service in this field.

A further finding of some moment, in which the two studies by Reichard and Frank H. Koos are in approximate agreement, is the negligible or almost negligible relationship shown between the amounts of time spent in the two main divisions of work — instructional activities and coöperations. If improvable conditions prevailed, as one of these divisions increases the other should decrease by something approaching equivalent amounts. This would mean a high negative coefficient of correlation. The Reichard study found a coefficient as small as -0.08 , and that in the Koos study rose only as far as -0.31 . Such a disclosure affords little ground for any contention that teaching loads should be reduced by blanket procedure so as to allow more time for efficient discharge of the other activities, or vice versa. It suggests rather that adjustments should be made only after a careful consideration of both constituents of the load in the light of such facts as have been presented and of others emanating from more extended investigations along the lines illustrated.

¹ John T. Greenan (8).

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V. THE TEACHERS' TRAINING AND EXPERIENCE

Graduation from higher institutions and degrees held. The training of secondary-school teachers will be considered under three main heads: (1) the extent as indicated by the degrees held, (2) special preparation for the subjects taught, and (3) the amount and kind of work in education, that is, in the more strictly professional subjects.

For a description of training under the first heading and in the country as a whole we have Bonner's report pertaining to 1921.¹ For "accredited" high schools in all states combined the percentage of college and university graduates as reported is 70.8, the normal-school graduates constituting 18.2 per cent, and the nongraduates 11.0 per cent. For "recognized" ² schools these percentages were, respectively, 52.2, 29.4, and 18.4, showing (1) smaller proportions of teachers having the extent of training now generally regarded as standard and (2) larger proportions of normal-school graduates and nongraduates.³

For the reason that the institutions represented constitute a somewhat selected group, some interest should attach to the extent of training, measured in this way, of teachers in the

¹ Bonner (2).

² The *recognized* high schools are those whose work is recognized for meeting a part of college-entrance requirements. Many of these schools offer a four-year course, but the work offered is either not sufficient in amount to meet all the entrance requirements or the work given in certain subjects is not of such a quality that the higher institutions care to recognize it. — BONNER (2), pp. 26-27

³ Bonner (2), p. 31. It should be stated that at least in one instance some question has been raised concerning the validity of Bonner's data. Hutson (13) cites materials from an unpublished study by Dean M. E. Haggerty, based on reports in the offices of the State Department of Education in Minnesota, showing the percentages of teachers in the high schools of that state who have degrees. For no academic subject does the percentage drop below 90.4, and for the median of nineteen subjects it is 96.2. For twelve "special" subjects the percentages range from 13.6 to 100.0, the median being 52.2. Hutson's own investigation had found but 17 per cent who were not graduates, including teachers of all varieties of subjects. Bonner reports about 70 per cent of the teachers in the accredited high schools of this state as being college or university graduates.

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high schools accredited to the North Central Association of Colleges and Secondary Schools. From data reported by Davis¹ we find (Fig. 77) that of 16,292 teachers of academic subjects reporting, 94.9 held bachelor's degrees; of 6453 vocational teachers a much smaller proportion, 58.8 per cent had such degrees. Since some of the teachers in question teach both academic and vocational subjects, and since this number is not reported by Davis, it is impossible to state

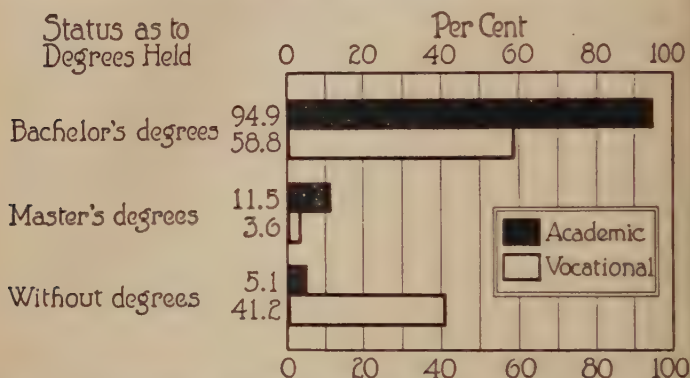


FIG. 77. Percentages of teachers in high schools approved by the North Central Association reported as holding bachelor's, master's, or no degree

accurately here what percentage of *all* teachers reporting were without degrees, but probably the proportion does not exceed 15 to 20 per cent. This is a better situation than has just been disclosed for all teachers in all accredited high schools of the country.

From the data reported by Davis may also be drawn percentages of teachers who have in addition master's degrees. For academic teachers the percentage is 11.5; for vocational teachers it is 5.1. An almost negligible proportion have doctor's degrees. There is further scattered but positive evidence that the amount of preparation is shifting upward and

¹ Davis (5).

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beyond the amount represented by the first degree. Hutson found 10 per cent of the teachers in the group of largest high schools reporting advanced degrees and 22.9 per cent as having taken some work beyond the bachelor's degree. The proportions were not so large in the groups of smaller high schools. California has set up a requirement of a year of graduate work for new appointees to high-school teaching staffs. The salary schedules of large cities make it possible to select teachers with more than four years of collegiate preparation. For example, inquiry into the highest degrees held by recent appointees to teaching positions in the senior high schools of Cleveland finds 17.8 per cent with master's degrees. Even among appointees to junior-high-school positions there were 5.1 per cent.¹ As professionalization of teaching in American secondary schools proceeds, the proportions with advanced training and degrees are certain to increase.

Preparation in the subjects taught. In the section of this chapter setting forth the subject distribution of the teaching load it was shown that most teachers, especially those in all but the largest high schools, are called upon to teach as many as two, three, four, or more different subjects. This demand cannot result otherwise than in frequent attempts by teachers to give instruction in subjects in which they have had little or no work in higher institutions — that is, in which they are inadequately prepared. This is shown clearly by Hutson² for teachers in the high schools of Minnesota. In addition to studying these amounts he also secured the opinions of superintendents as to the amounts of such preparation they desire of teachers in the various subjects. The medians are compared for all but the group of largest high schools in Figs. 78 and 79. In most instances the desires of superintendents are in excess of the amounts of work taken in the field by the teachers; in some cases markedly so. The subjects in

¹ Survey of Higher Education in Cleveland (1925), p. 291.

² Hutson (13), pp. 32-46.

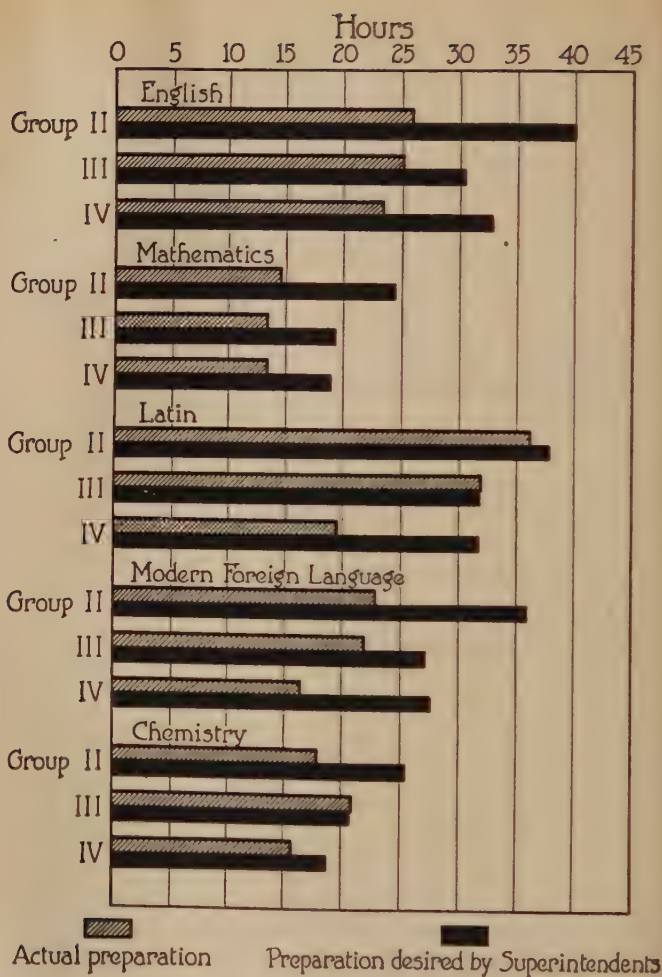


FIG. 78. Number of semester hours of actual preparation in higher institutions for subjects in which teachers were giving instruction, and preparation desired by superintendents (English, mathematics, Latin, modern foreign language, chemistry)

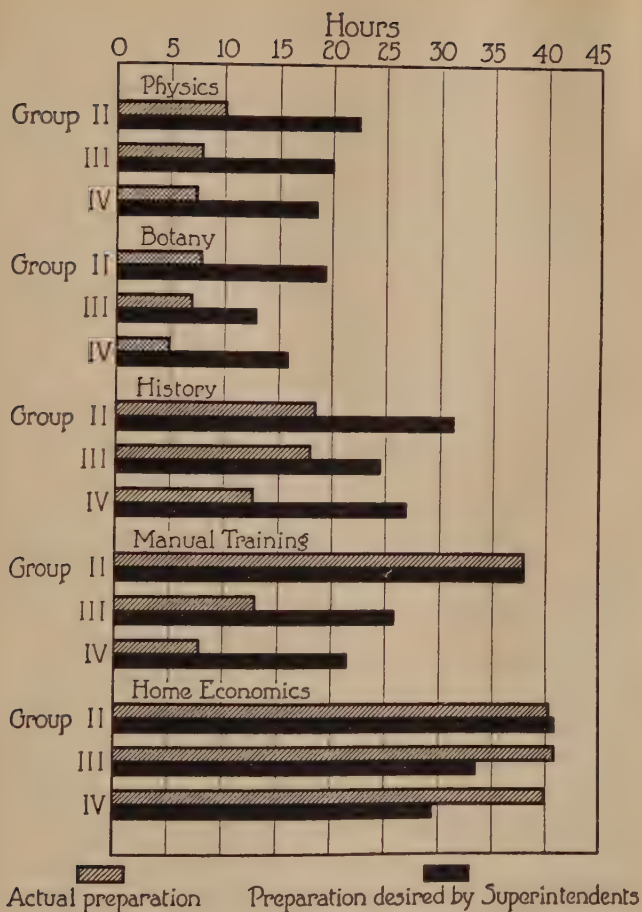


FIG. 79. Number of semester hours of actual preparation in higher institutions for subjects in which teachers were giving instruction, and preparation desired by superintendents (physics, botany, history, manual training, and home economics)

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which the discrepancies are largest and the amounts of preparation also deplorably low are mathematics, physics, botany, history, and manual training (except for Group II).

The situation disclosed is not a reassuring one. Steps must soon be taken, if not to remedy it completely, at least to ameliorate it. Most of these measures have already been proposed in discussing the subject distribution of the teaching load. Others may be added, especially in the way of a modification of teacher-training programs. Teachers should be prepared in *more* subjects, and this might well include preparation to teach groups of subjects somewhat homogeneous, such as the social studies, the natural sciences, etc., as suggested earlier in the chapter.

Training in professional subjects. (1) The nature and (2) the amount of training in education of high-school teachers will be illustrated by citing data from studies already referred to in this chapter (Table XLVII). Courses which have been taken by half or more of such teachers, either in Minnesota or Washington, or in both states, are history of education, principles of education, special methods (in subjects for which these teachers secured special preparation), practice teaching, and educational psychology. The proportion reporting technique of teaching (or general methods) rises almost to this level. Other courses taken by 20 per cent or more of teachers in one or both states were philosophy of education, some course in the field of administration or supervision, principles of secondary education (or "secondary education"), psychology of adolescence, and educational sociology (or social aspects of education). Courses less frequently taken were high-school curriculum, elementary-school curriculum, educational or mental measurements, psychology of high-school subjects, industrial and vocational education, and foreign school systems.

Some notion of the amounts of training in this special field received by high-school teachers during undergraduate pe-

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riods of preparation may be had from data reported by Davis,¹ concerning high schools approved by the North Central Association. These data show that 19.0 per cent had had less than 11 semester hours of such work as undergraduates, 27.8 per cent from 11 to 15 semester hours, and 53.2 per cent more than 15 semester hours. These amounts are inclusive of general psychology when this subject was taken. This does not include all the work in education taken by these teachers, since many had had such courses after receiving the bachelor's degree.

TABLE XLVII. PERCENTAGES OF HIGH-SCHOOL TEACHERS IN MINNESOTA AND WASHINGTON REPORTING AS HAVING TAKEN CERTAIN COURSES IN EDUCATION

COURSES	PER CENT	
	Minnesota ²	Washington ³
History of education	71.0	69.9
Philosophy of education	21.2	23.9
Principles of education	44.0	59.4
Administration and supervision	30.8	27.9
Principles of secondary education ⁴	21.1	20.4
High-school curriculum	9.4	— ⁵
Elementary-school curriculum	4.9	6.4
Educational measurements	9.0	7.5
Mental measurements	5.9	— ⁵
Technique of teaching (general methods)	40.4	46.3
Special methods	52.6	37.7
Practice teaching	55.7	34.6
Educational psychology	60.8	73.1
Genetic psychology or adolescence	12.5	22.8
Psychology of high-school subjects	6.3	— ⁵
Educational sociology	26.0	16.2
Industrial and vocational education	13.4	11.9
Foreign school systems	2.1	6.9

¹ Davis (3), p. 29.

² Hutson (13), p. 62.

³ Koos and Woody (23), p. 248.

⁴ Sometimes referred to as "secondary education."

⁵ No data.

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This more strictly professional training varies from state to state and from institution to institution and is undergoing changes both as to nature and amount. Doubtless if teachers recently completing their undergraduate preparation were compared with those having extended experience, the composites of distribution of courses would be found to be markedly different, reflecting shifts in courses required. Among courses that would almost certainly be found to be gaining ground in this respect are principles of secondary education (or "secondary education"), technique (or general methods), practice teaching, and educational sociology. The amount of such work has also been increasing, and is likely to continue to do so with the inevitable expansion of valuable content in this field.

Experience of high-school teachers. In regard to the extent of experience of high-school teachers Bonner has the following to say: ¹

In accredited high schools of the United States as a whole 55 per cent of the teachers have had over five years of teaching experience either in high schools or in other schools. As this group constitutes the experienced teachers in our high schools, it is desirable to devote some attention to it. . . . In almost seventy per cent of the states the per cent of experienced teachers falls between forty and sixty. In only eight states . . . does the percentage of teachers with over five years' experience exceed sixty. With the single exception of Pennsylvania, all of these states pay relatively very high salaries. . . . There is, therefore, tangible evidence to warrant the statement that high salaries and long experience go together. The correlation between average salaries and percentages of teachers with over five years' experience is .5012. . . . This coefficient is rather high and tends to substantiate the generalization made. . . . If the teaching vocation is to become a profession for which young men and women are adequately prepared and in which they expect to find their life's work, it is imperative that salaries be made attractive, as evidenced from this correlation.

¹ Bonner (2), pp. 35-38.

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The accredited high schools, however, have fared much better than the recognized and the non-accredited schools, in their effectiveness in securing and holding experienced teachers. In recognized schools the per cent of teachers with over five years of experience is only 37.7 and in non-accredited schools only 36.3.

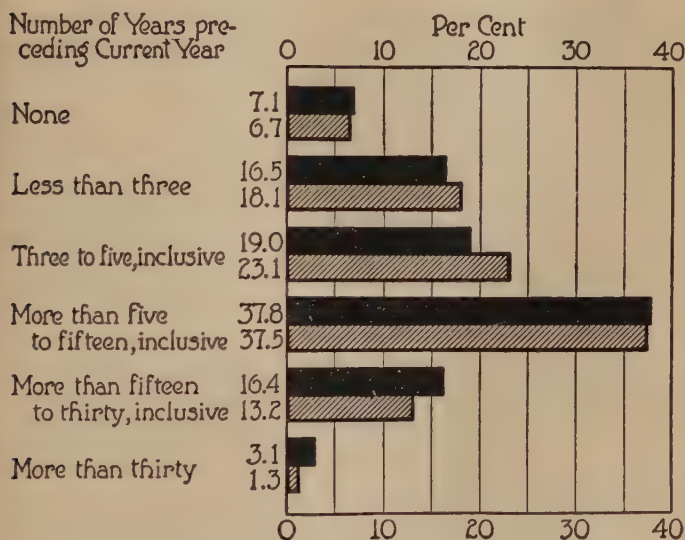


FIG. 80. Percentage distribution of academic and vocational teachers in high schools on the accredited list of the North Central Association according to length in years of experience previous to the year for which report was made. (Black, academic; shaded, vocational)

Comparison of this condition with that found in such a selected list of schools as those accredited by the North Central Association ¹ (see Fig. 80) finds it only slightly different, since of academic teachers only 57.3 per cent and of vocational teachers only 52 per cent have had more than five years of teaching experience. There is thus also a rapid turnover of the staff in these schools. Contrary to the opinion

¹ Davis (3), p. 48.

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held by many, this turnover is practically as rapid for men as for women, since the percentages with no experience, less than three years' experience, from three to five years' experience and so on for the two sexes do not differ by more than 2 or 3 per cent.

Full description of the extent of turnover in the high-school teaching staff has not, however, been provided until the length of stay *in present positions* has been considered. Of the academic teachers in North-Central high schools just referred to, 26.3 per cent had been in their "present" positions less than a year, signifying on the average a practically complete turnover approximately every four years. The percentage who had been in the positions less than three years was 36.1, the percentage who had remained three years but not more than five years, 16.1. For vocational teachers the corresponding percentages were about the same, being 26.6, 38.5 and 19.6. The sole comfort to be taken in such a rapid shift of personnel is that some part of it represents promotion of competent teachers to positions of larger responsibility.

VI. OTHER PROFESSIONAL RELATIONSHIPS OF HIGH-SCHOOL TEACHERS

Other important responsibilities of teachers. Before directing attention to salaries of teachers in secondary schools and to principals and the principalship it is desirable to deal briefly with certain responsibilities of the teaching profession which too often escape consideration where the interests of the secondary school and of those who attend it are concerned. The first of these responsibilities, teachers' meetings, has barely been mentioned among the "coöperations" listed in an earlier section. The second, what Finney refers to as the "social aspects of the teacher's job," and the third, professional ethics, overlap. All three are of vital importance to professionalization of instructors and instruction in secondary schools.

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1. *Teachers' meetings.* The literature on the first point is scanty. We shall here draw on a study made in order that more guidance might be available to school heads and groups of teachers who are casting about for the best means of developing professionally profitable teachers' meetings.¹ Such contribution as is made pertains primarily to teachers' preferences and attitudes toward these meetings. It goes without saying that a knowledge of these preferences and attitudes is of prime importance in an undertaking that, to be successful, requires the coöperation of those participating.

Approximately four hundred high-school teachers were consulted in the study, teachers employed in twenty-five high schools with staffs ranging in size from two members (exclusive of the principal) to not far from a hundred. The method of inquiry for the preferences was by questionnaire. Principals acted as intermediaries to distribute the forms, and teachers were directed to supply the answers which the forms called for. To encourage frankness in response, those coöperating were permitted to sign or not as they chose, and were requested to seal the filled forms in envelopes provided for the purpose before returning them to the principal, who retransmitted them to the writer. For almost all schools coöperating, a full or practically full count of teachers responded, assuring the representativeness of the preferences indicated.

a. Arrangements for teachers' meetings. The preferences of high-school teachers will be reported under two main heads: (1) those bearing on *arrangements* for the meetings or *conditions* under which they should go forward—for example, their frequency, the days, hours, and durations of meetings, requirement of attendance, social features, etc.; (2) those pertaining to the *concern* of the meetings as determined by topics considered. As to arrangements the dominant preferences only will be reported.

¹ Koos (17).

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The frequencies preferred (assuming the sessions to be professionally constructive) are monthly and biweekly teachers' meetings, although some go so far as to urge weekly meetings. The most popular *days* of the week are Monday and Tuesday. The *time of day* most often indicated is the close of the school day. The major preference as to *duration* is for sessions an hour in length, most of the others ranging from three quarters of an hour to an hour and a half. Other preferences are for definite times for opening and closing, for prearranged and preannounced topics, for requirement of attendance, and for meetings *usually* held separately from those for elementary-school teachers. There is dominant preference, but less approach to unanimity, for the assignment of reading to be reported on and for the school head as presiding officer.

The desire to have meetings designed to serve their special needs is shown also in the responses to a request to indicate the proportion of all high-school teachers' meetings which should be *departmental*. Well over two thirds of all the teachers put their preferences at or between the limits of a fourth to a half of the meetings. Even in the high schools with the largest staffs less than a fifth of the teachers would make more than half the meetings departmental, thus conceding the value of the general high-school teachers' meeting.

b. *The concern of teachers' meetings.* The desires of high-school teachers as to lines of professional interest to be considered in their meetings were ascertained in two ways. First, those who coöperated were directed to number in order of preference five main divisions of topics, assigning to the group considered most important the rank 1, to the next in importance, 2, and so on. The distributions (Table XLVIII) show the variation in judgment usual in studies of this sort, but, with the averages, they show also trends of differences among the listed topics. The group most highly regarded, if we may judge by the averages of the ranks, is *discussing the educa-*

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tional policy of the school (II), and it is closely followed by considering improvement of classroom teaching (III) and keeping abreast of the best educational thought (V). At some distance below these come considering individual pupils in the school (IV) and familiarizing teachers with the routine of the school (I).

TABLE XLVIII. NUMBERS OF HIGH-SCHOOL TEACHERS ASSIGNING RANKS 1 TO 5 TO CERTAIN GROUPS OF SUBJECTS SUGGESTED FOR MEETINGS, AND THE AVERAGES OF THE RANKS ASSIGNED

GROUPS OF SUBJECTS	NUMBERS OF TEACHERS ASSIGNING RANK					AVERAGE RANK
	1	2	3	4	5	
I. Familiarizing teachers with the routine of the school	73	29	29	56	204	3.7
II. Discussing the educational policy of the school	128	93	84	77	10	2.4
III. Considering improvement of classroom teaching	79	100	113	77	22	2.6
IV. Considering individual pupils in the school	27	90	95	95	73	3.3
V. Keeping abreast of the best educational thought	86	78	75	84	69	2.9

Secondly, those coöperating were requested to place a check mark opposite what seemed to them the five most important subdivisions under each of the five main divisions just cited. Four to six subdivisions suggested as possible topics for teachers' meetings were listed, the total number being twenty-five. The subdivisions and the number of teachers checking each are shown in Fig. 81. This figure was so constructed as to show not only the total number of ballots received by each topic, but also its excess over or deficiency under the average number received by all the twenty-five topics. This number is approximately seventy-eight, and is the number of ballots each topic would have received if the distribution had been a strictly random one.

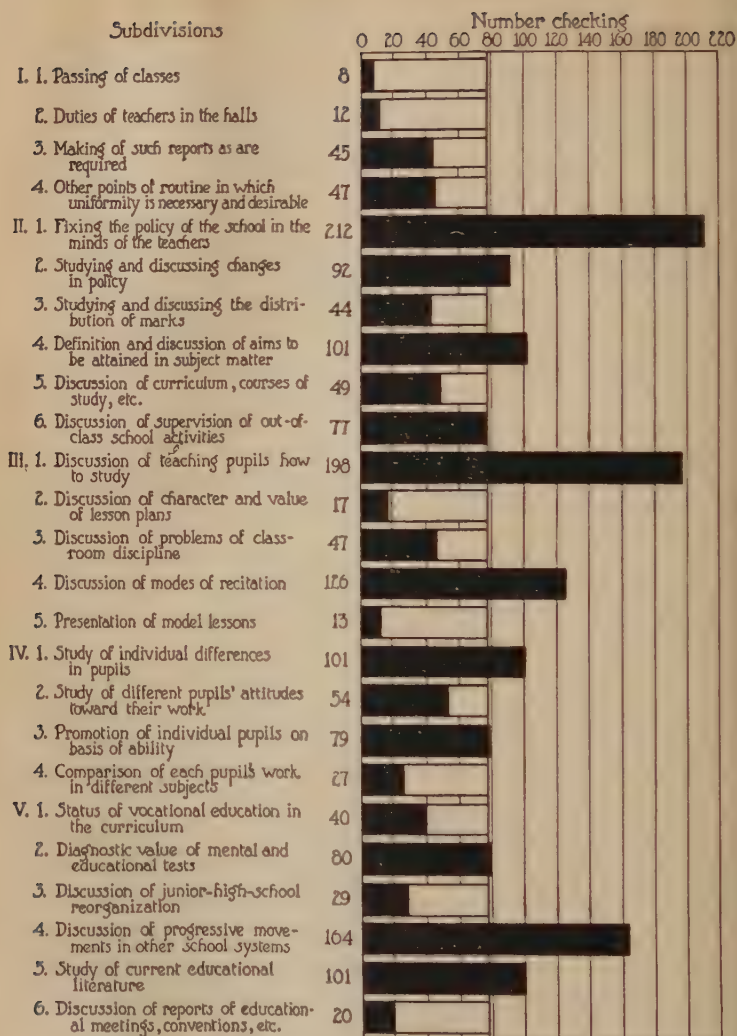


FIG. 81. Number of teachers checking each subdivision as a topic desirable for consideration at high-school-teachers' meetings

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The four subdivisions receiving notable excesses of a random sample of the ballots, in the order of the degree of preference shown, are *fixing the policy of the school in the minds of teachers so that all will work to a common end* (II, 1), *discussion of teaching pupils how to study* (III, 1), *discussion of progressive movements in other school systems* (V, 4), and *discussion of modes of recitation (for example, socialized recitations, project method, question and answer, etc.)* (III, 4). Three others having appreciable and at the same time equal excesses are *definition and discussion of aims to be attained in subject matter* (II, 4), *study of individual differences in pupils* (IV, 1), and *study of current educational literature* (V, 5). If space permitted, it would be interesting to draw inferences from the number of ballots given to each of these and the others of the full list of topics. One only will be ventured — the apparent preference of high-school teachers for topics the consideration of which will foster their professional growth and the improvement of the work going forward in the school in which they are employed. This inference has the corroboration of the small proportions of ballots given to the first topics of the list, those concerned with matters of routine to which, unfortunately, teachers' meetings are often exclusively restricted.

There is no assumption that the lists either of divisions or of subdivisions are comprehensive. The categories are intended rather to be illustrative. Those who are acquainted with Smith's article on high-school-teachers' meetings¹ will recognize some measure of dependence on it for topics included. The remainder have been drawn from various sources. These categories are wide enough in scope to test the nature of the teachers' preferences, which, as has already been concluded, are clearly toward matters of professional significance. The ballotings on these categories, like the preferences indicated on the arrangements for meetings, disclose a com-

¹ Lewis W. Smith (30).

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mendable attitude, constituting a challenge to the principal or to groups of teachers on whom the task of planning professional teachers' meetings may fall.

2. *Social aspects of the teachers' position.*¹ The second group of professional responsibilities was canvassed by inquiring of superintendents of schools how the teachers can best safeguard their general social relationships so as to avoid those errors which often hamper usefulness in instruction. The suggestions were classified as follows, the numbers in parenthesis indicating the number of suggestions, made by twenty-eight superintendents, which were judged as falling in each group:

- I. Moral and quasi-moral deportment (29).
- II. General attitude toward the community (19).
- III. Participation in organized community activities (41).
- IV. Relations with patrons and citizens (18).
- V. Relations with pupils (40).
- VI. Relations with colleagues (17).
- VII. Room, board, dress, etc. (13).
- VIII. Miscellaneous (22).

Under the first head were classified the demand for "an irreproachable example" and the requirement of discretion with respect to "keeping company" and dancing, the item last named being frequently mentioned because of unfavorable attitudes in many communities toward participation in it. Under the second head were placed statements urging the teacher to identify himself with the community and to avoid what might appear to be a feeling of superiority. An emphatic proscription pertains to what are referred to as "suit-case" teachers; that is, those who are away from Friday afternoon until Monday morning and otherwise manifest little or no interest in the community. One superintendent would have teachers admonished to look out for their financial

¹The writer is under obligation to Professor Ross L. Finney of the University of Minnesota for permission to use these materials.

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credit. The most frequent types of recommendation in the third group are for the assumption of responsibilities in organized community activities, but not to the extent of overdoing them. Participation in church activities is regarded as especially advantageous. Under relations with patrons and citizens (fourth group) "general friendly acquaintance," the cultivation of social affiliations with the best people, mistrust of the earliest overtures, observation of the niceties of social etiquette, calls on pupils' parents, and active interest in parent-teacher associations are counseled. Relations with pupils (fifth group) should be strictly professional in aim, being characterized by courtesy, tact, helpfulness, and the like. Familiarity is to be avoided, and it is regarded as "professionally suicidal" to "keep company" with students. The assumption of extra-curricular responsibilities is expected. Relations with colleagues (sixth group) must be coöperative, harmonious, and generous. Professional-social clubs and functions are to be encouraged. Happy arrangement in matters of board and room (seventh group) being important to success in the social adjustments, specific admonitions refer to early arrival to make such arrangement, to seeking good advice concerning it, to mistrusting solicitors for boarders and roomers, to coveting accommodations in respected homes in preference to hotels and restaurants. Dress should be appropriate. The most frequent miscellaneous (eighth group) recommendation is to avoid all remarks disparaging the community or its members.

3. *The ethics of the teaching profession.* The last of the three groups of professional relationships to be specially dealt with is ordinarily designated as "professional ethics." Judging from the increased frequency in recent years of treatments of the subject in educational and other periodicals and in educational conventions, those connected with our school systems are developing awareness of the need of long and rapid strides

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toward professional conscience and consciousness of this sort. As has already been intimated and as will be seen in what follows, these relationships overlap those just outlined, especially inasmuch as professional ethics must comprehend much of what may be regarded as the social aspects of the teacher's position. The fact that both groups of responsibilities are applicable to both levels of instruction, the elementary and the secondary, adds to rather than detracts from their importance.

The "principles." In a study made by Powers ¹ of a large number of codes, articles dealing with the subject, etc. (pertaining to *teachers* only, not administrative officers), the categories under which the materials were classified divided themselves as "principles" and "rules of ethics." The principles, which are general statements serving as standards of conduct without prescribing or defining any specific conduct, are relatively few in number, being, in the order of frequency of mention in all sources examined, *preparation, compensation, social service, obligation to pupils, coöperation, and professional spirit*. The principles are given more definite meaning in the following quotation :²

Principle 1. *Preparation*. The members of the profession are in possession of a body of scientific and technical knowledge and corresponding skill essential to the welfare of the community. Admission to the profession is gained by acquiring this knowledge and skill. It is clearly implied and sometimes stated that there is a monopoly on this knowledge and skill which precludes the practice of the profession by the layman.

Principle 2. *Compensation*. Compensation should be adequate to enable its members to render the most efficient service. This is the logical correlate of principle 1. In order to render the most efficient service the professional man or woman must live on a scale befitting his social position and must make reasonable provision for professional improvement. Compensation is interpreted to include secure tenure of office, rising salary with increased

¹ Powers (25).

² Ibid. pp. 266-267.

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experience, pension in case of disability, the costs of needed professional books and magazines and of memberships in and attendance at the meetings of professional organizations. The living wage should be sufficient to cover living expenses for twelve months. A teacher should not be obliged to engage in other pursuits in order to supplement his wage from teaching. . . .

TABLE XLIX. FREQUENCY OF MENTION OF PRINCIPLES OF ETHICS FOR THE TEACHING PROFESSION IN CODES (15 SOURCES) AND IN OTHER EDUCATIONAL LITERATURE (21 SOURCES)

PRINCIPLES PERTAINING TO	FREQUENCY OF OCCURRENCE IN		
	Codes	Other Literature	Both
1. Preparation	7	15	22
2. Compensation	2	3	5
3. Social service	4	10	14
4. Obligation to pupils	5	3	8
5. Coöperation	—	6	6
6. Professional spirit	3	8	11

Principle 3. *Social service.* Professional work must always be performed as a social service . . . rather than to the personal gain of an individual. The teacher is primarily a servant of the community, not of his superior officer or of any individual of the community. This service must be rendered without regard for matters . . . [of] religion, politics, and the like. Since the teacher is himself a member of the community his own personal comfort and convenience must be secondary to the public good.

Principle 4. *Obligation to pupils.* The highest obligation of every member of the profession is . . . to those who are being taught. This is referred to as "The fundamental ethical principle of the profession. . . ."

Principle 5. *Coöperation.* [Teaching] is a coöperation that takes into account the interests of all the human factors involved . . . the board of education, the superintendent and other administrative and supervisory officers, parents and pupils, and the community at large. The teaching service is not rendered exclusively by teachers. The home especially is to be considered the most efficient co-partner in rendering this service.

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Principle 6. *Professional spirit.* The teacher's attitude is dominated by the professional spirit. The term . . . is used in a number of connections but particularly in reference to a spirit of social service as a distinguishing mark of the profession. As applied to the teacher it implies an appreciation of what constitutes professional and unprofessional attitudes and conduct.

TABLE L. FREQUENCY OF OCCURRENCE OF RULES OF ETHICS FOR THE TEACHING PROFESSION IN CODES (15 SOURCES) AND IN OTHER EDUCATIONAL LITERATURE (21 SOURCES)

(A plus sign indicates that the activity so designated is professional; a minus sign, that it is unprofessional.)

RULES OF CONDUCT AS RELATED TO	FREQUENCY OF OCCURRENCE IN		
	Codes	Other Literature	Both
I. SECURING A POSITION			
- 1. Advertise by innuendo	3	2	5
- 2. Apply unless there is a declared vacancy	10	7	17
+ 3. Demand an adequate compensation	3	8	11
- 4. Bid or underbid for a position	3	5	8
- 5. Issue or use indiscriminate recommendations	3	1	4
- 6. Use political, religious, etc. influence	5	4	9
+ 7. Use teachers' agency as a last resort	—	2	2
- 8. Accept position under adverse conditions	2	4	6
- 9. Seek offer elsewhere for sole purpose of securing advancement in present position	1	2	3
+ 10. Withdraw outstanding applications when a position has been accepted	2	3	5
II. PARENTS AND PUPILS			
+ 1. Treat the pupil as an individual	5	6	11
- 2. Discuss deficiencies to embarrass	3	2	5
- 3. Accept remuneration for tutoring own pupils	4	1	5
+ 4. Apprise public if rights of children are being denied	5	2	7
+ 5. Exercise special care for the helpless, indigent, and ignorant	1	1	2
+ 6. Meet criticism with patience, courtesy, and open-mindedness	4	2	6

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RULES OF CONDUCT AS RELATED TO	FREQUENCY OF OCCURRENCE IN		
	Codes	Other Literature	Both
III. THOSE IN AUTHORITY			
+ 1. Practice confidence in, coöperation with, and sincerity toward . . .	10	10	20
+ 2. Attend faithfully to all duties assigned	5	4	9
+ 3. Support the defined policies of the school	2	2	4
- 4. Break a contract	14	11	25
- 5. Violate official correspondence or conversation	2	1	3
- 6. Violate the principles of line organization	4	3	7
IV. THE PROFESSION OR ITS MEMBERS			
+ 1. Maintain a high standard of morality, courage, and justice	6	8	14
+ 2. Be a progressive student of education	15	10	25
+ 3. Make available the results of research	9	3	12
+ 4. Exhibit a deferential treatment toward members of the profession	13	7	20
+ 5. Condemn and expose unprofessional or immoral conduct within the profession	7	4	11
- 6. Decry the profession	3	5	8
+ 7. Encourage the fit to enter the profession	2	2	4
- 8. Use the profession as a stepping-stone to another vocation . . .	2	7	9
- 9. Talk "shop" in the presence of strangers or laymen	2	1	3
+ 10. Defend members unjustly attacked	2	—	2
V. THE PUBLIC			
+ 1. Conform to the standards of the community	1	3	4
+ 2. Participate in community affairs .	8	9	17
+ 3. Place the public good before personal gain	6	6	12
+ 4. Refrain from undue political ambitions	2	1	3
+ 5. Resent unwarranted interference by laymen	1	3	4
VI. THOSE COMMERCIALY INTERESTED			
- 1. Accept favors from commercial men	3	1	4
- 2. Act as agent for or receive commission or royalty on textbooks or supplies	1	3	4

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Rules of ethics in teaching. The rules for conduct designate specific activities as either professional or unprofessional. Theoretically, each rule emanates from one or more principles. The rules have been grouped in Table L, on pages 676 and 677, as relating to I, Securing a position; II, Parents and pupils; III, Those in authority; IV, The profession or its members; V, The public; and VI, Those commercially interested. The formulation of the categories has been so carefully done as to make their meaning apparent with little or no explanation. Possible exceptions are I, 1 and 8, which are interpreted by Powers as follows:

1. A teacher should not advertise by innuendo, exploitation, or personally inspired press notices. The teacher's best advertisement is a well-merited reputation for professional ability acquired through service.

8. A teacher should not accept a position if the conditions are such that there is little likelihood of success. Conditions mentioned are restrictions to which no self-respecting and ambitious teacher can subscribe, a vacancy created under such conditions, or conditions that would restrict the personal liberty of the teacher. This means essentially a boycott on such positions.

It is to be admitted that the materials presented do not constitute a professional code for teachers, although they may include the content of an acceptable or desirable one. It does not appear that any of the formulations from which the study was drawn are codes in a strict sense. To be so they would need to be coercive, as when violation of the code of the legal profession by an individual lawyer would result in his disbarment. They are at best the composite opinion of organizations of teachers on what is professional or unprofessional behavior, and can have no more influence on the behavior of an individual teacher than is possessed by such an opinion. However, they are not to be totally disparaged on this account. Even though violations of items in these codes are not

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now followed by penalties comparable to disbarment, nevertheless the codes do have behind them the compulsion of the good or bad esteem of one's group, and in addition they provide the foundations on which a genuinely coercive code can and will in time be erected.

VII. SALARIES OF TEACHERS

The importance of adequate remuneration. The relationship of adequate salaries to school efficiency is so obvious that there is little need of arguing it. It is so important that despite the tendency in the materials on professional ethics just presented to stress the opportunities for social service and the desirability of rendering disinterested service to pupil and public, the seeking of adequate compensation is also often recommended for a place in the code. While the possibilities of social service in an occupation must have much to do with its professionalization, its dignity will also be in part determined by the income attendant upon participating in it.

The salaries paid. The Research Division of the National Education Association has made inquiries into the situation regarding salaries in educational positions. The materials presented in its published reports¹ will be drawn on to afford some knowledge concerning salaries paid in all but the smallest communities. A first comparison is of median annual salaries of elementary-school, junior-high-school, and senior-high-school teachers in cities of different population groups. Median salaries in 1924-1925 for these three classes of teachers in cities of 2500 to 5000 were, respectively, \$1129, \$1307, and \$1491 (see Fig. 82). This shows a differential of less than \$200 between the levels of instruction represented. The medians advance with the size of the population until for cities of 100,000 and over they were, respectively, \$1968,

¹ (26).

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\$2220, and \$2536 for senior high schools. The median differential in these cities is somewhat larger than for the smallest cities represented in the tabulations reported.

Since medians alone are not sufficiently descriptive of the situation, a figure indicating the percentage distributions of

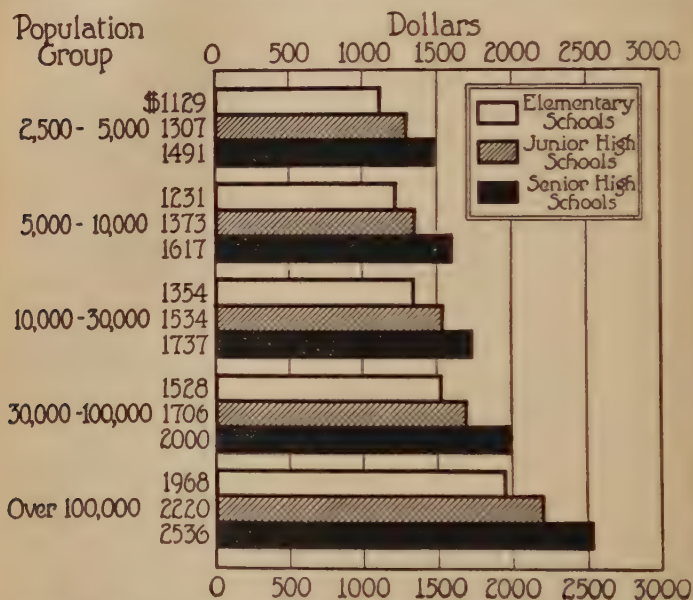


FIG. 82. Median annual salaries in 1924-1925 of elementary-school, junior-high-school, and senior-high-school teachers in cities of different population groups

median salaries in each of the population groups is also presented (Fig. 83). These show a shift toward higher salaries in passing from each group of cities to the next larger. At the same time the distributions markedly overlap each other. There is thus wide variation from city to city within the several groups, and at the same time some assurance of advancement in salary as teachers progress from the smaller

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systems to the larger. While improvement is still to be desired, salaries of high-school teachers in the larger cities approach a basis on which a comfortable living is afforded.

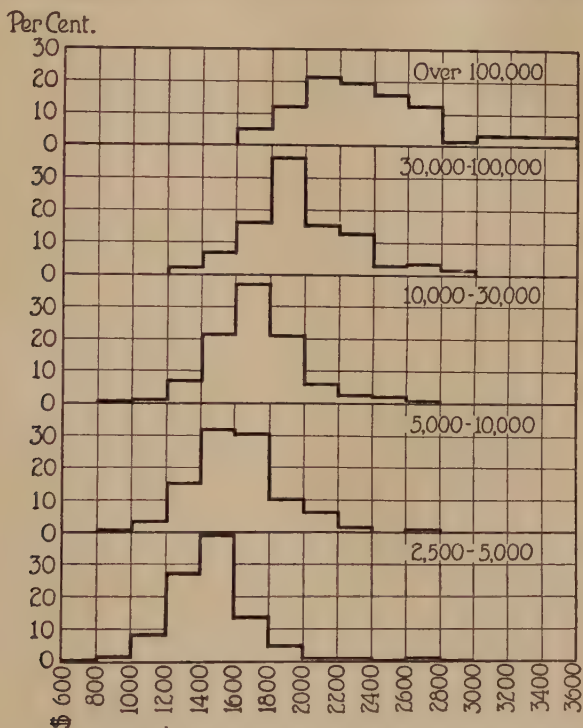


FIG. 83. Percentage distribution of median salaries in 1924-1925 of high-school teachers in cities of different population groups in the United States. (Adapted from (26), p. 21, Table XI)

Although data are not given concerning salaries of teachers in communities of less than 2500 — in which we have already seen (Chapter VI) that the majority of public high schools are located — yet it may be judged that remuneration in them is typically less.

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VIII. THE PRINCIPAL

The work of the high-school principal. Administrative heads are admittedly vital factors in the efficiency of the schools and school systems with which they are connected. No treatment of a high-school staff is therefore complete without some consideration of the high-school principal or others in positions of administrative responsibility. The dean, or adviser, of girls has already been considered (pp. 616-620). It would be desirable also if space could be spared to consider other positions of a directive nature, such as the assistant or vice principal, where provision is made for this office. The most that can be essayed is a brief treatment of the high-school principalship only.

A number of attempts at classifying the high-school principal's work have been made, and a few studies have even reported the amounts of time devoted to each of the classes or types of activity among which the total "load" is distributed. A study which combines the classes of activity and the distribution of time is one reported by John for high-school principals in California.¹ The classes of activity reported (Table LI) are ten in number: *instructional load, administration, clerical duties, supervision, professional load, additional-income activities, community activities, recreational activities, home duties, and "other activities, including eating and sleeping."* Obviously the last three classes are personal and not properly to be counted as professional. This is almost equally true for much of what are reported as community activities, since they do not seem to be essentially different from duties which should be discharged by any intelligent and socially minded member of the community.

Of the *instructional load* the chief constituents are teaching proper, study supervision (such as study-hall duty), and preparation for instruction; of *administration, management*

¹ R. R. John (14).

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TABLE LI. MEDIAN NUMBER OF HOURS DEVOTED WEEKLY TO SEVERAL CLASSES OF PROFESSIONAL ACTIVITY BY PRINCIPALS OF HIGH SCHOOLS IN CALIFORNIA ¹

CLASS OF ACTIVITY	HIGH SCHOOLS GROUPED BY NUMBERS ENROLLED		
	350 and Over	150-349	Less than 150
Instructional load	—	16.25	30.00
Administration	18.25	12.00	6.00
Clerical duties	9.00	8.50	5.50
Supervision	13.25	10.25	6.00
Professional load	8.00	8.75	7.00
Additional income and community activities	7.50	6.25	5.50

of the school plant, administration of school policies, and "other administrative duties"; of *clerical duties*, correspondence and work on records and reports; of *supervision*, visiting classes and supervision of student activities; of the *professional load*, professional reading; of *community activities*, church work, community social activities, and civic activities.

A comparison of the median number of hours spent weekly by principals of high schools grouped by size of enrollment shows that heads of large high schools have little or no teaching responsibility, whereas this is the largest single constituent of the work of the principals in small high schools. On the other hand, principals in large high schools devote much more time, and logically so, to administration and supervision. They also carry somewhat heavier loads in other classes of work.

The question may well be raised whether the principal of the small high school, even if it is admitted that he should do some teaching, is not so heavily burdened with instructional activity as to prevent the proper discharge of other important professional responsibilities more peculiar to the position.

¹ Adapted from John (14).

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The writer has elsewhere ¹ concluded that principals of small high schools are too infrequently vested with initiative in critical administrative and supervisory activities, this conclusion being in harmony with the question just raised. This defect, in fact, applies also to many principals of large high schools, since many of these cannot take the initiative in affairs as momentous as disciplinary control involving suspension and expulsion, selecting new teachers, and recommending salary promotion, although they are vested with full authority in such matters as organizing the class schedule, ordinary disciplinary control, and keeping records and reports.

*The principal's training and experience.*² 1. For the country as a whole, except for high schools in communities with populations of less than 2500, almost all principals are graduates of colleges and hold degrees. The proportion of principals holding the master's degree is much larger than that of high-school teachers, and increases with the size of the communities represented. For cities with populations of from 25,000 to 100,000 the percentage with the master's degree was 35.3; with the master's or the doctor's degree, only slightly less than two fifths.

2. The work in education taken by high-school principals includes courses typically required of high-school teachers in training. As a rule it is also considerably in excess of this in amount and scope, showing a tendency to secure professional equipment suited to leadership of a teaching staff.

3. In only a small proportion of cases have high-school principals planned as undergraduates to enter the work in which they are now engaged. Although a majority planned to enter educational work of some sort, most of these looked forward to high-school teaching. From teaching positions as presumable apprenticeships, they have been advanced to principalships. Many who are serving as principals planned

¹ Koos (20).

² This description of the training and experience of high-school principals is summarized from certain portions of Chapters III-VII of Koos (20).

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to enter other professions. In terms of occupational plans as undergraduates it may be said that almost all our principals have stumbled into the profession. They tend, however, to compensate for this disadvantage by supplementary training pertinent to the principalship of the secondary school.

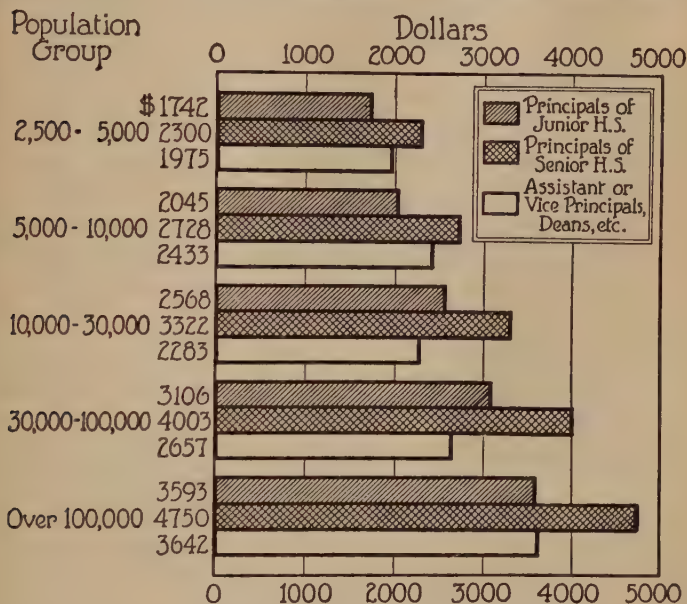


FIG. 84. Median annual salaries in 1924-1925 of principals of junior high schools, of principals of senior high schools, and of assistant or vice principals, deans, etc. in cities of different population groups. (Adapted from (26), p. 32)

4. As may be expected, the typical period of experience both as high-school teachers and as principals increases with the size of the community represented. For principals of high-schools in communities of from 1000 to 2500 the average number of years in all educational positions is 9.6; in high-school teaching, 7.4; in high-school principalships, 5.4. For

cities of 25,000 to 100,000 these averages rise to 20.6, 17.2, and 12.5 respectively. It may be judged that much of the reported experience in principalships was accompanied by teaching experience.

The principal's remuneration. Some impression concerning the salaries paid to principals of junior and senior high schools and to assistant principals in cities of different population groups may be obtained from materials published by the Research Division of the National Education Association.¹ For cities with populations of from 2500 to 5000 the median salaries for the three types of position named were, respectively, \$1742, \$2300, and \$1975 (see Fig. 84). The medians increased with each population group until, for cities of more than 100,000, they were \$3593, \$4750, and \$3642. These salaries are sufficiently large to induce capable men to enter upon the work as a permanent vocation — an important factor in professionalizing an occupation.

Professionalizing the principalship. But the elevation of the principalship to undoubted professional status is not to be accomplished merely by means of salaries encouraging permanency of tenure. Other steps to be taken should be in the direction of (1) selecting and recruiting capable young men for the work, selection and enlistment to be accomplished at least two years before the completion of requirements for the first collegiate degree; (2) mapping out and putting in operation curricula in principal-training at least three years in length, beginning not later than the opening of the third college year; (3) adding by research to the special content in secondary education pertinent to the principalship; (4) encouraging principals to seek greater responsibilities and initiative in more critical matters; (5) fostering the growth of principals' professional organizations.²

¹ (26).

² See Koos (20), chap. x, for a more extended treatment of most of these suggestions.

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IX. UNSOLVED STAFF PROBLEMS

Many unsolved problems. A number of staff relationships have been briefly treated in the foregoing pages of this chapter; namely, the teaching load and its subject-distribution, time spent in coöperations, the training and experience of high-school teachers, other professional responsibilities, high-school teachers' salaries, and the high-school principal. Although some significant materials are at hand concerning these matters, it must be said that, at best, we are lacking in adequate solutions in a number of essential respects. This must always be more or less characteristic of the educational situation, especially in a phase which, like secondary education, is just now peculiarly dynamic. New problems rapidly crowd in to supplant, in the attention and interest of educators, those problems which have been solved at least in part, even if not completely.

Among questions only partly touched or not at all mentioned in foregoing sections of this chapter are those relating to (1) professionalized content in teacher-training curricula, (2) training for supervision of allied activities, and (3) many aspects of personnel, especially those which concern the types of persons who should be recruited to high-school teaching; not to mention (4) a comprehensive view of professionalization of high-school teaching and (5) proper preparation for instruction in the coming reorganization of American secondary education. (1) We grow increasingly conscious of the need of professionalizing the content of the course that grounds a student in a subject which he is to teach; that is, emphasizing in the teacher-training curriculum those phases of subject matter which are being emphasized, or should be emphasized, in the secondary-school courses. (2) With the rising importance of allied activities, preparation for this portion of the teachers' load should no longer be neglected. (3) Inquiry into many vital aspects of the whole vast problem

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of personnel in the sense of types of persons who should enter the work of high-school teaching has scarcely begun. While (as illustrated at several points in the chapter) we are (4) making progress toward the professionalization of high-school teaching and administration, yet the situations as to preparation, tenure, professional ethics, and salaries show that much of the distance to complete professionalization is yet to be traversed.¹

Training for teaching in reorganized secondary schools. Not to be outweighed in importance by any of the problems so far referred to is the question of (5) appropriate preparation for the inevitable changes in organization of American secondary education. This problem has many aspects, but the only one that can be considered here is the period of preparation. Just as we were about to attain an agreement on the requirement of graduation from colleges and universities for admission to high-school teaching, and were actually having the standard rather generally applied to the traditional four-year high school, the junior high school appeared and forced a reopening of the question as it applies to this new unit. What is to be the standard period of preparation for junior-high-school teaching? Nor is this all. As the upward

¹ A means of professionalizing high-school teaching sometimes proposed is to increase the proportion of men teachers. In this connection it is pertinent to report the proportions of men in high-school teaching positions in the country as a whole at various points beginning with 1890. From data published by the United States Bureau of Education (see *Bureau of Education Bulletins No. 7* (1924), p. 2, and No. 60 (1924), p. 1), the present writer has computed the percentages of men teachers for 1890, 1900, 1910, 1920, and 1922, respectively, at 40.5, 49.9, 45.3, 36.2, and 39.0. The percentages for 1920 and 1922 do not include teachers in junior high schools, who by this time had become sufficiently numerous to make it necessary to omit them if the data entering into the computations were to be kept comparable. The only point at which the proportion of men in four-year and senior high schools dropped notably below two fifths of all was in 1920, before the schools had recovered from the exodus of men during the World War. It may be said that, with this exception, the proportion of men teachers in high schools over the entire period had ranged from approximately two fifths to a half of all. This is probably in disagreement with the popular belief as to the proportions of men and women teachers.

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extension of the secondary school to include junior-college years proceeds, and the new period of secondary education eventually comprehends eight school years, the question What is to be regarded as standard preparation for the upper levels of teaching? will become more and more insistent.

Partial answers to both questions are beginning to emerge in practice. Although the standard is not yet attained by all teachers, the trend is definitely toward requirement of a degree for teachers in junior high schools. For example, only 30.4 per cent of recent appointees to junior-high-school positions in Cleveland were without degrees,¹ most of these teaching special subjects for which it is not possible to secure college graduates. As the four-year junior high school predicted for our future organization of secondary education (see Chapter VII) comes into existence, this standard of college graduation would still be appropriate to junior-high-school teaching service. Most formulations of standards of teacher-preparation for junior colleges call for the master's degree or at least a year of graduate training — the equivalent of five years beyond the high school. This standard could readily and advantageously be applied to the third and fourth high-school years which will be incorporated with the junior-college years in organizing the upper of the two four-year units proposed for the future American secondary school. This requirement, as we have seen (p. 659), is already being adopted. The only serious objection to such a standard for this upper unit is that it is lower than will be ultimately desirable. It will doubtless be raised further as reorganization is accomplished. At the same time it may be questioned whether the doctor's degree should be set as the goal for teachers in this new upper unit, especially if extreme specialization and training in methods of research remain the universal requirements for the degree.

¹ Survey of Higher Education in Cleveland, p. 291.

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QUESTIONS AND PROBLEMS

1. Which of the methods of investigating the teaching load — number of daily recitations, number of pupil-recitations, and amount of time devoted to the work in and out of class — is the preferable one for providing a basis on which to assign teaching responsibilities?

2. Investigate the spread of subject assignments to teachers in a high school with less than ten teachers. If some teachers are found to have an undesirably wide spread of work, inquire into the possibilities of improvement.

3. Inquire into the sex, preparation, and tenure of office among teachers in German and French secondary schools. Compare in these respects with teachers in our high schools.

4. Consider the question of the relationship of the proportions of men and women teachers in the high schools to the professionalization of high-school teaching.

5. What influence, if any, does the teachers' relatively short tenure of position have on our high schools?

6. How would a pension system for high-school teachers influence this tenure?

7. Suggest a list of topics for a series of fifteen biweekly high-school teachers' meetings that would be professionally profitable.

8. Cite from your experience instances of undesirable attitudes of teachers toward the communities in which they were working.

9. Point out the relationships between Finney's materials on the social aspects of the teacher's position and those in Powers's analysis of codes of professional ethics.

10. Note the ranking that would be given the "rules of conduct" by the frequency of mention in Powers's tabulations. Does frequency of mention place these rules approximately in the order of what seems to you to be their importance?

11. How could such a code be made coercive?

12. Inquire into the relationship between increases in teachers' salaries during recent years and increases in the cost of living.

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XIX

THE SCHOOL PLANT AND COSTS

I. HOUSING AND EQUIPMENT

A chapter on material aspects. Foregoing chapters of this book have dealt with secondary education in many phases. There have been treatments of its development, of the pupils it serves, of its aims, and of its relationships to education above and below. There has been extended consideration of its organization — of the types of provision of education on this level. The activities in the secondary school as to curriculum offerings, guidance, and allied (or extra-curricular) interests have been surveyed. Relationships of the school to the community have been briefly canvassed. Finally, in Chapter XVIII some attention was accorded to the staff — teachers and principals — directly responsible for the work of the secondary school. In the comprehensive treatment of secondary education here essayed, there remains for the present chapter a brief consideration of its material aspects, more particularly of the facilities provided (housing and equipment) and the costs of secondary education. The main topics of the chapter are the housing and special equipment, the library, and costs.

Space in modern high-school buildings. The rapid expansion of secondary education in recent years, as described in Chapter I, called for an extension of the facilities for carrying it forward. The structures that have been provided and the equipment housed in them constitute one of the wonders of our day. Something of the range of these facilities is suggested by the results of an investigation, made by the writer, of the purposes for which space was provided in the floor

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plans of a large number of high-school buildings erected during the decade 1908-1917.¹ The one hundred and fifty-six floor plans studied had been reproduced in twenty volumes of the *American School Board Journal*. Counting only provisions found at least three times in the one hundred and fifty-six buildings, and excluding space for boilers, fuel, ashes, fans, engines, flues, vestibules, corridors, etc., the resulting lists show 109 different kinds. By adding those excluded, the total of different kinds would easily mount up to 200. Groupings which may be made of this large number of provisions include (1) class and recitation rooms; (2) science rooms (for chemistry, physics, biology, etc.); (3) rooms for shop and allied work (manual training, printing, automotive work, mechanical drawing, forge, foundry, etc.); (4) rooms for home economics (for cooking, sewing, fitting, dining, laundry, bedroom work, etc.); (5) commercial rooms (for type-writing, stenography, bookkeeping, and banking); (6) art rooms; (7) music rooms; (8) library rooms; (9) club, society, and recreation rooms; (10) gymnasiums and allied provisions; (11) locker rooms and cloak rooms; (12) auditoriums and assembly, study, and session rooms; (13) lunch rooms; (14) offices for principals and teachers; (15) rest rooms and emergency rooms; (16) a wide variety of other provisions for textbooks, storage, janitors, toilets, bicycles, etc. To afford a clearer impression of the specific purposes for which space was provided, as well as of their relative frequency, those found in more than 20 per cent of the plans are listed in the order of frequency in Table LII, which, however, does not include 70 of the 109 kinds found three times or oftener. By contrast with this list and with the foregoing grouping, the older high-school buildings, with their classrooms and study hall, and little else besides, were simple indeed.

When one examines the list with the purpose of finding the provisions made in at least a majority (more than 50 per cent)

¹ Koos (7).

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TABLE LII. SPACE PROVIDED IN THE FLOOR PLANS OF HIGH-SCHOOL BUILDINGS IN THE ORDER OF FREQUENCY OF APPEARANCE ¹

(Kinds appearing in more than 20 per cent of 156 plans)

PERCENTAGE GROUP AND KIND OF SPACE PROVISION	PER CENT
90-100 per cent:	
1. Classrooms and recitation rooms	99.4
80-90 per cent:	
2. Principal's office	86.5
3. Boys' toilets	82.7
4. Girls' toilets	82.0
70-80 per cent:	
5. Assembly room or auditorium	76.9
60-70 per cent:	
6. Library room	65.4
7. Stage (in assembly room or auditorium)	61.5
50-60 per cent:	
8. Chemistry laboratory	57.7
9. Gymnasium	55.1
10. Physics laboratory	53.8
11. Lecture or demonstration room (for science)	50.6
12. Storage room	50.6
40-50 per cent:	
13. Boys' locker room	47.4
14. Girls' locker room	46.8
15. Manual-training room or shop	43.6
16. Cooking room or laboratory	42.3
17. Reception or waiting room (to principal's office)	41.7
30-40 per cent:	
18. Sewing room or laboratory	38.5
19. Study rooms or halls	37.8
20. Mechanical-drawing or drafting room	35.3
21. Teachers' rest or retiring room	35.3
22. Domestic-science room or laboratory	34.6
23. Dressing or anterooms (for stage in auditoriums)	34.6
24. Dining room (for home economics)	33.3
25. Janitor's room	32.7
26. Biology laboratory	31.4
27. Lavatories or shower rooms	31.4
28. Wardrobe or cloak room	30.8
20-30 per cent:	
29. Typewriting room	29.4
30. Apparatus room (for science)	28.8
31. Commercial room	26.3
32. Stock or lumber room (for manual training)	26.3
33. Women-teachers' rest room	25.6
34. Dark room (for science)	25.6
35. Lunch room	24.3
36. Science room or laboratory	21.2
37. Free-hand-drawing room	20.5
38. Pantry (for home economics)	20.5
39. Machine room or shop	20.5

¹ Adapted from Table VII in (7).

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of the high-school buildings, these are found to include classrooms or recitation rooms, chemical and physical laboratories with a lecture room for these sciences, an assembly room or auditorium with a stage, a library room, a gymnasium, an office for the principal, a room for general storage, and boys and girls' toilets. A fact not apparent in the table is the presence in a majority of all plans of *some* provision for manual training and for home economics. The list ignores the *size of the communities* the high schools are serving. They range in population from small villages to our largest city. By dividing the plans into two groups, placing in one group those for high schools in communities of more than ten thousand population and in the other those for high schools in smaller communities, it was possible to note to some extent the influence of size of community on the purposes for which space is provided. For the larger communities this grouping reveals, in addition to the provisions already reported as being found in a majority of schools, a laboratory for biology, a room for mechanical drawing, boys' and girls' locker rooms, and a reception room or waiting room adjoining the principal's office. For the smaller communities this grouping subtracts from the list the chemical and physical laboratories with their lecture rooms, and the room for storage. It is not only impossible but unjustifiable to provide in smaller high schools all the wide variety of accommodations of space and equipment that are to be found in the larger institutions.

Space in junior high schools. Since the work of the junior high school, as with the older type of high schools, is more or less conditioned by the facilities provided, and since one of the concerns of this book is junior-high-school reorganization, it is appropriate to draw on certain data reported by Terry descriptive of the housing of the junior units.¹ He found as many as 69 different purposes for which space was provided in three or more of 149 junior-high-school buildings. Of these,

¹ Paul W. Terry (10).

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25 were found "in more than 50 per cent of the larger buildings originally designed for junior high schools." These were (1) *general* (classrooms or recitation rooms, principal's office, auditorium, stage in auditorium, rest room for women teachers, library, textbook room, reception room), (2) *industrial arts* (manual-training shop, mechanical-drawing room, and separate woodworking shop), (3) *home economics* (cooking room, sewing room, dining room, and supply room), (4) *science* (separate general-science laboratory), (5) *fine arts* (free-hand-drawing room and music room), (6) *physical education* (showers for boys, showers for girls, physical director's room, gymnasium lockers for boys, gymnasium lockers for girls, and gymnasium for both boys and girls), and (7) lunch room or cafeteria. Other purposes for which space is provided almost as frequently are the study hall, the separate sheet-metal shop, the separate printing shop, general lockers for boys, general lockers for girls, separate fitting room (for home economics), bedroom (for home economics), separate typewriting room, and separate bookkeeping room. Even these abbreviated citations from the list are evidence that the junior high school aspires to a much broader service than does the unreorganized school. The full list would lend further support to such a conclusion.

Illustrative floor plans. Merely to list the provisions made, as has been done, cannot alone give a concrete impression of the housing of the modern secondary school. It is helpful to supplement the description by illustrating the distribution and arrangement into floor plans of the provisions in structures actually being used by pupils and teachers. To illustrate all desirable types of buildings for all types of secondary schools is out of the question, but the least that should be done is to reproduce the floor plans of a senior high school and of a junior high school. To make apparent the contrast of modern structures with those of a former day, the first figure introduced is that of the Providence (Rhode Island) High School, con-

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structed in 1848 (Fig. 85). This building — undoubtedly a matter of community pride when it was first erected — made only the most meager provisions for space, but probably all that were needed for the restricted curriculum of that day. Besides classrooms, there were an assembly hall, a lecture room, a demonstration room for chemistry and physics, some offices, a furnace room, and necessary hallways and stairways.

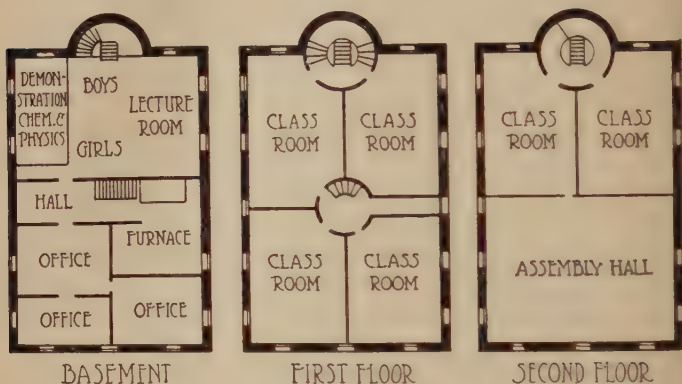


FIG. 85. Floor plan of the Providence (Rhode Island) High School (1848)
(From Paul C. Packer (8), p. 4)

The senior high school the floor plans of which are used illustratively is that of Dubuque, Iowa, and the junior high school that of Pontiac, Michigan. The plans for these schools are used because they are representative of the better type of structures recently being built in cities of medium size, the population credited to Dubuque by the census of 1920 being about forty thousand and to Pontiac about thirty-five thousand.

Since the important provisions in the senior high school are designated in the diagrams (Figs. 86-88), it is not necessary to repeat them all by name. It is enough to note that the general plan is that of a large central portion flanked by two

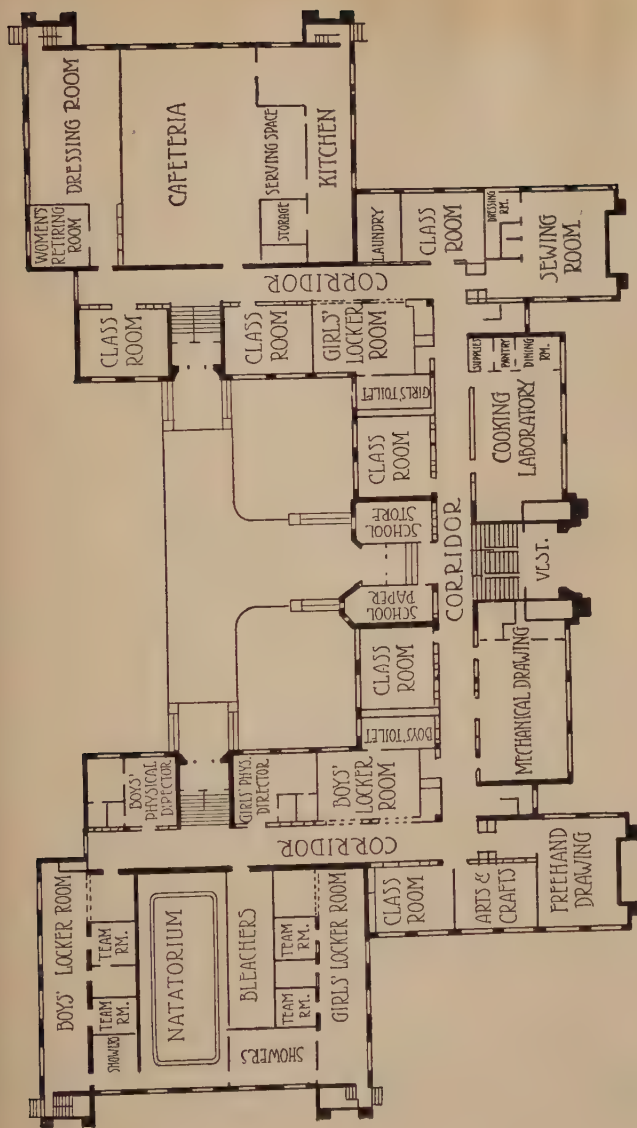


FIG. 86. Ground-floor plan of the senior high school, Dubuque, Iowa

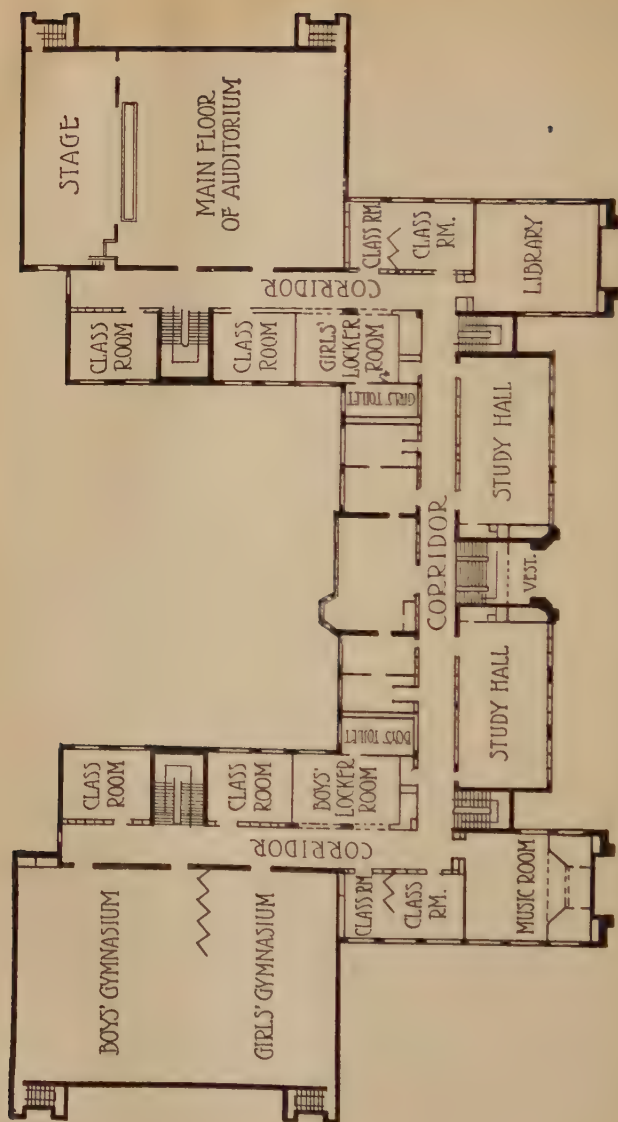


FIG. 87. First-floor plan of the senior high school, Dubuque, Iowa

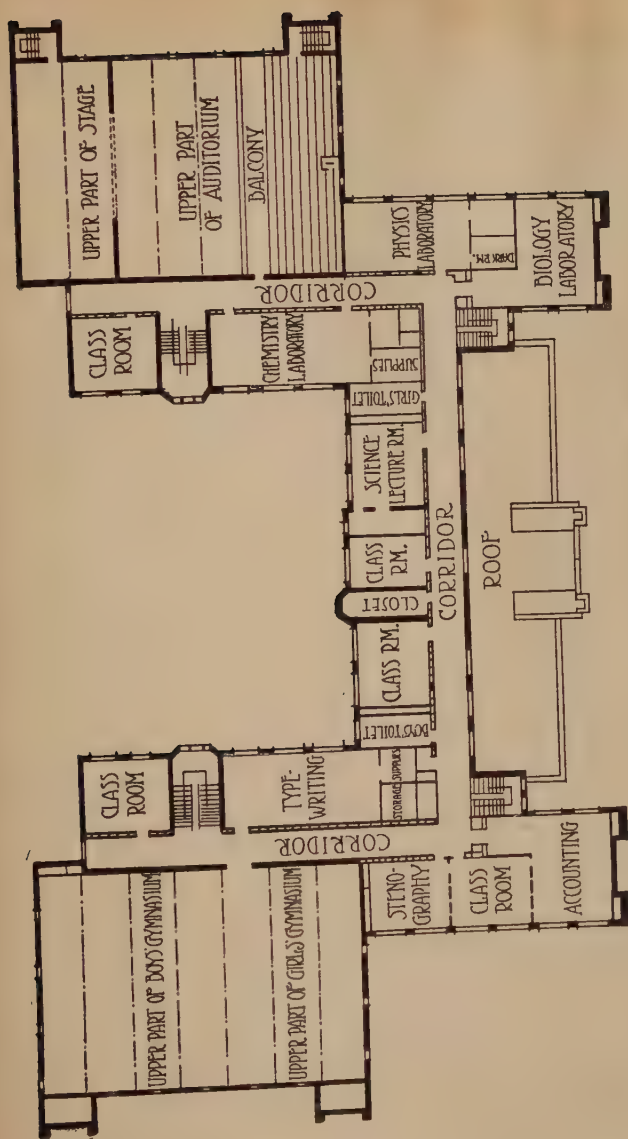


FIG. 88. Second-floor plan of the senior high school, Dubuque, Iowa

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wings, one of which houses the facilities for physical training and the other the auditorium, with the cafeteria on the ground floor below it. In the central portion are to be found the usual classrooms, science laboratories, a number of rooms for special subjects (mechanical and free-hand drawing, cooking, sewing, commercial subjects, music, etc.), study halls, and library.

The type of arrangement used in the junior high school in Pontiac (Figs. 89-91) is different from that just described. Instead of being in wings of the main structure, the gymnasium and the auditorium are together more like the stem of a T of which the main structure is the top. In the long rectangular main structure are to be found classrooms, special-subject rooms (science rooms, general shops, mechanical-drawing room, cooking room, sewing room, art and design room, commercial rooms, and music room), library, offices, rest room, health-service rooms, etc. The basement plan (not reproduced) includes a room for automobile mechanics. The plan, as may be seen in Fig. 89, admits of future expansion, one feature of the prospective enlargement being a swimming pool. Our attitude toward plans allowing for future expansion may well be favorable.

Arrangements for space in buildings for secondary schools take many other forms. This is true whether the units served are senior high schools, four-year high schools, junior high schools, or junior-senior high schools. In schools in which junior and senior units are housed together, efforts are sometimes made in the plans to effect some separation of pupils in the two groups of grades. This is a commendable practice. There are no marked differences in the space provisions of buildings planned for senior high schools and four-year high schools. In small communities it is a common practice to house the high school in "complete" schools; that is, in structures planned to accommodate both elementary-school and high-school grades.

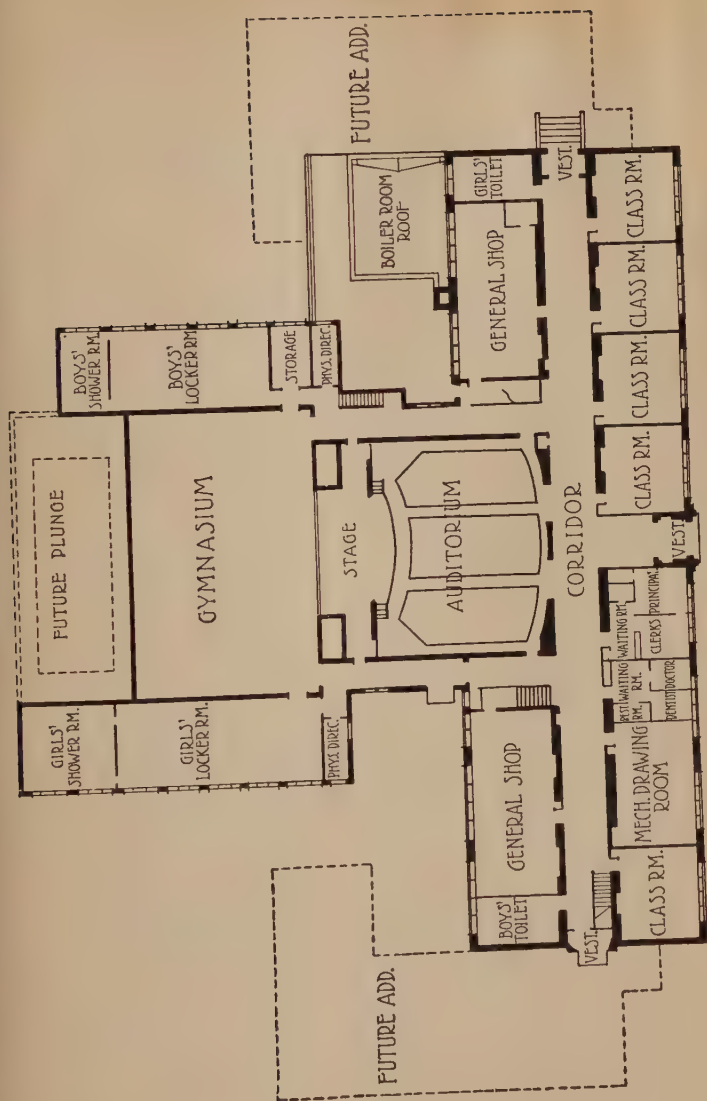


FIG. 89. Ground-floor plan of the junior high school, Pontiac, Michigan

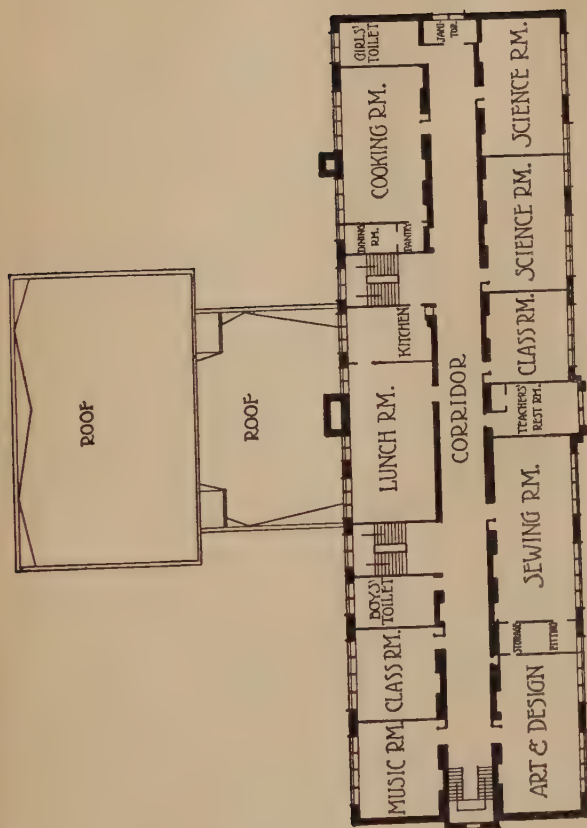


FIG. 91. Second-floor plan of the junior high school, Pontiac, Michigan

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Standards for planning and judging buildings. The Commission on the Reorganization of Secondary Education, whose reports and recommendations have often been quoted in earlier chapters of this book, has formulated a principle well worth bearing in mind in considering improvements of the housing of secondary education in any community:¹

The development of successful secondary school plants, whether for senior, junior, or four-year comprehensive high schools, must be governed first and foremost by adaptation to local needs and educational policies. In other words, school plants like school curriculums are indigenous and cannot be successfully transplanted. A successful school plant in one community may prove an educational misfit and a monument to waste in another. To be sure, there are certain universal principles applicable to all school buildings, such as safety, adequate natural light, ventilation, practical economy, and impeccable architecture. At the same time, the requirements for health and recreation, for citizenship, and for vocation are variable and depend far more on the needs of each school community, the ability of that community to meet the needs, and the type of organization of the various educational activities proposed than upon any set of standards.

Notwithstanding this variation of the need from community to community the universal needs are so important as to make it desirable and feasible to apply somewhat similar standards — with latitude for essential adaptation to local needs — in judging buildings for secondary schools. A valuable service has been rendered in this connection by Strayer and Engelhardt, who have devised a score card usable in objectifying any judgments ventured on particular buildings.² Since it is not practicable to reproduce here the complete score card, inclusive of its one hundred and fifty-two sub-items, only the larger divisions and subdivisions are presented. Even these portions assist one in being more circumspect in considering the adequacy of some particular high-school

¹ (6), p. 1.

² George D. Strayer and N. L. Engelhardt (9).

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plant. The figures in parentheses are the numbers in a total of a thousand points assignable to the division or subdivision in a supposititious perfect or ideal building:¹

- I. Site (100)
 - A. Location (30)
 - B. Nature and Condition (20)
 - C. Size and Form (50)
- II. Building (155)
 - A. Placement (10)
 - B. Gross Structure (75)
 - C. Internal Structure (70)
- III. Service Systems (270)
 - A. Heating and Ventilating (50)
 - B. Fire-Protection System (55)
 - C. Cleaning System (15)
 - D. Artificial-Lighting System (25)
 - E. Electric-Service System (12)
 - F. Water-Supply System (30)
 - G. Toilet System (40)
 - H. Mechanical-Service System (5)
 - I. Locker Service (20)
 - J. Laundry Service (3)
 - K. Storage Service (15)
- IV. Classrooms or Recitation Rooms (145)
 - A. Location and Connection (20)
 - B. Construction and Finish (65)
 - C. Illumination (40)
 - D. Equipment (20)
- V. Special Classrooms (140)
 - A. Science Laboratories (36)
 - B. Household-Arts Laboratories (35)
 - C. Industrial-Arts Shops (36)
 - D. Commercial Classrooms (15)
 - E. Drawing and Art Classrooms (10)
 - F. Music Rooms (8)

¹ Strayer and Engelhardt (9), pp. 4-8.

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VI. General-Service Rooms (140)

- A. Auditorium (45)
- B. Cafeteria (20)
- C. Gymnasium Facilities (30)
- D. Swimming Pool (10)
- E. Library (20)
- F. Study Halls (15)

VII. Administration Rooms (50)

- A. Administrative Offices (17)
- B. Teachers' Rooms (10)
- C. Health-Service Rooms (15)
- D. Student-Activity Rooms (2)
- E. Custodial-Service Rooms (6)

The score card, including the sub-items not reported here, is accompanied by explanatory and definitive material helpful in ascertaining the merit of a given high-school structure.

The problem of full utilization of instructional space. The rapid influx of pupils into our secondary schools in recent years made new demands for space to accommodate them. The problem of providing space was accentuated by a contemporaneous mounting of costs of construction. These forces have combined to stimulate more careful attention to the degree of utilization of facilities at hand and to dependable methods of computing the amounts and kinds of space required in situations where the question of making adequate provisions arises. Packer has reported an investigation along both these lines.¹ His method of inquiry into the extent to which the facilities at hand are utilized is exemplified in a study made by Fred Engelhardt and Harry J. Steel² the results of which are cited here.

One phase of this method is to study the proportion of *occupancy* of the rooms in high-school buildings without re-

¹ Packer (8).

² Fred Engelhardt and Harry J. Steel, *Efficient Use of School Buildings*, *Educational Research Bulletin*, College of Education, University of Minnesota, June, 1926. Data here cited are for High School B in this study.

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gard to the capacity of the rooms. In a given high-school structure there were 12 nonspecialized rooms — that is, rooms suitable for English, history, foreign language, and the like — and 15 specialized rooms, — for manual training, printing, cooking, chemistry, biology, library, etc. There being five days in the school week and (in this school) seven periods in the day, this means a possible occupancy during the week of ($12 \times 7 \times 5 =$) 420 nonspecialized room-periods and ($15 \times 7 \times 5 =$) 525 specialized room-periods. During the semester under consideration 340, or 81 per cent, of the 420 nonspecialized room-periods, and 328, or 63 per cent, of the 525 specialized room-periods were in use. The proportionate occupancy of specialized rooms is less than that of nonspecialized rooms. The extent of occupancy of specialized rooms varied widely from room to room. For example, the percentage of occupancy was 28 for the sewing room, 28 for the biology laboratory, 28 for the chemistry laboratory, 85 for the gymnasium, and 100 for manual training. There was also some variation in occupancy from period to period in the day, the range for the nonspecialized rooms being from 63 per cent in the sixth period to 92 in the fourth period, and the range for all specialized rooms being from 53 per cent in the fifth period to 77 per cent in the sixth period.

A better test of the extent of use of rooms is afforded by the second phase of the method, which takes into account the capacity of the rooms; that is, the number of pupils who can be accommodated in them. In Packer's computations the "capacity of each classroom and study hall was determined on the basis of fifteen square feet of floor space and two hundred cubic feet of air for each student. In the case of laboratories the capacity was figured on the basis of the number of students for which the rooms had been equipped." ¹ Thus, if a nonspecialized classroom in the high-school building under consideration had a capacity of 30 pupils computed

¹ Packer (8), pp. 14-15.

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in this way, its total possible capacity for the 35 periods in the school week was 1050. If the attendance in this room during the week (counting the numbers of pupils present in it during each of the 35 periods) was 750, then the use was $\frac{750}{1050}$ of the capacity, or 71 per cent. Measured in this way the percentage use of the nonspecialized rooms of the building in Engelhardt and Steel's study was 52, or only a little more than half. The percentage for specialized rooms (lunch room and assembly room excluded) was 51. The percentage for one specialized room, the biological laboratory, was as low as 8. The largest percentage in a specialized room, 95, was for the physical laboratory, but this was attained because classes in general science and in geometry were also assigned to it. It is manifest that this structure can lend itself to the accommodation of a much larger number of pupils than were in attendance at the time the study was made.

The same conclusion may be drawn from the data given by Packer concerning the use of eight high schools represented in his study. The percentages of actual capacity being used are given in Fig. 92. Even if it is admitted that the ideal of full use — 100 per cent — is unattainable, it is apparent that there is much instructional space not utilized. In fact, for all types of space combined, the total of utilization is less than half the capacity. Because of the large financial outlay involved in the space unused, careful planning looking toward more nearly complete utilization is called for. There is also raised the whole question of restricted specialization in the planning and use of rooms. As far as may be, multiple use of rooms (especially in all but the largest schools) should be planned for.

Special equipment. Not only must adequate housing be provided for our secondary schools, but other facilities in the way of equipment must be at hand for carrying on the work. This equipment may be thought of as both general and special; that is, equipment necessary for all pupils or for

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more than a single line of work, and equipment necessary for specific courses and subjects. Among the most important general needs is the library, which is the concern of the next

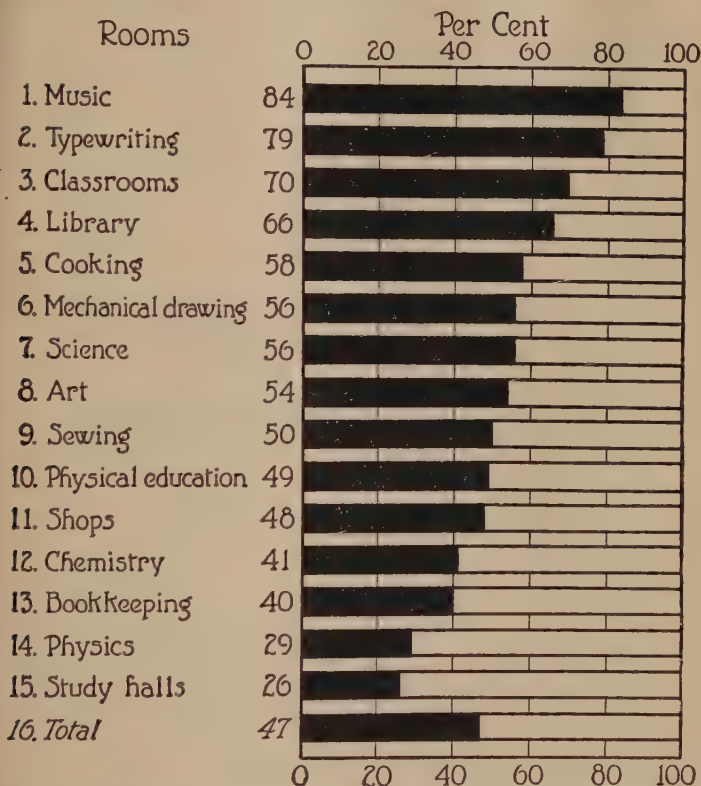


FIG. 92. Percentages of actual capacity being used for different types of work in eight cosmopolitan high schools. (Packer (8), p. 18)

section. The brief treatment of special equipment which is possible here will have to do only with the average values of equipment provided in certain high schools on the accredited list of the North Central Association of Colleges and Second-

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ary Schools as these values were reported by Davis for 1917.¹ Because of increased costs of such equipment, as well as additions to equipment since that date in the schools represented, these values are doubtless low as of the date of this writing. On the other hand, since these schools are larger than the

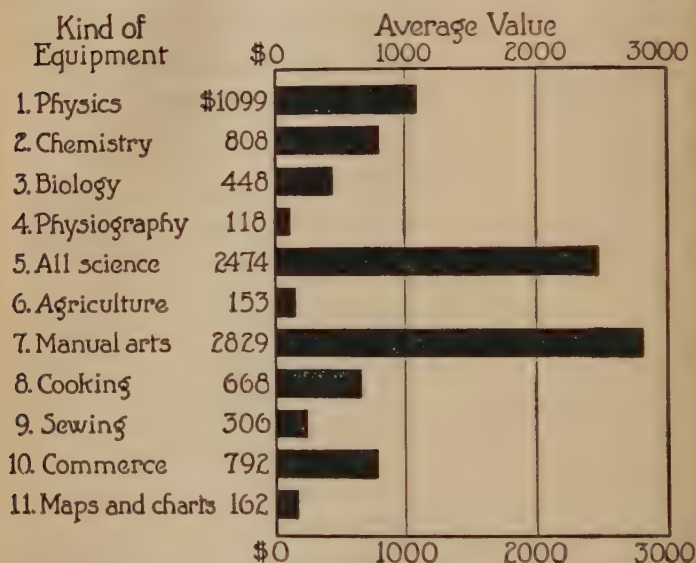


FIG. 93. Average value of equipment in accredited secondary schools of the North Central Association of College and Secondary Schools. (After Davis (4), pp. 69-82)

majority of the schools in this region and are also a selected list in certain additional respects, the averages may be assumed to bear some, even if only a partial, relationship to satisfactory facilities for the fields of instruction concerned.

These average values are shown in Fig. 93. Values of equipment for the sciences were in the following order from greatest to least: physics, chemistry, biology, and physiog-

¹ Davis (4), pp. 69-82.

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raphy. Davis reports values for no other sciences, although equipment for them is unquestionably to be found in a number of schools. For the practical arts the largest average value was for manual arts, the remaining subjects being in the following order: commerce, cooking, sewing, and agriculture. Davis reported also the average value of equipment for gymnasiums and playgrounds as \$6426, which is much larger than for any other special field. These values range widely from school to school, and the averages vary widely from state to state. For example, the average for agriculture ranged from \$21 in one state to \$427 in another. No figures are reported for certain other special subjects, such as music and art, for which special equipment is indispensable and, in consequence, often provided.

Useful suggestions on many problems relating to general and special equipment will be found in Strayer and Engelhardt's "Standards for High-School Buildings" (9).

II. THE HIGH-SCHOOL LIBRARY

The rôle of the library in the modern secondary school. On account of its significance the library is the only part of the general equipment of the modern high school that will be given more than passing attention. A part of this significance may be seen in the present trend to break with the textbook tradition in American education. Despite this trend, most subjects and courses in the great majority of schools are still taught by a procedure in which the content of courses is determined by what is found between the covers of a single textbook in each field. A well-managed library leads to an expansion of the scope of course content to correspond with the expanding range of knowledge in the subject, and away from the limitations of one author.

In this connection it is well to mention the position taken by many leaders in methods of teaching subjects like English

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and the social studies, which on account of their nature call for a larger reading content than certain others. This position is that the library is in an important sense the *laboratory* of such subjects — the laboratory in which books, magazines, and other reference materials are the equipment. From this standpoint this equipment may at times be properly regarded as special for these subjects rather than as general for the school. In accordance with this view teachers of English have been known to direct attention to the unfavorable light in which costs of equipment for their subject appear when compared with costs for other subjects. For example, a report of the National Council of Teachers of English quotes average values per pupil as computed by Professor V. C. Coulter, some of which were as follows: English, \$2.76; Latin, \$1.62; French, \$1.75; German, \$1.28; mathematics, \$0.75; history, \$2.06; physics, \$19.71; chemistry, \$23.49; agriculture, \$10.75; home economics, \$10.24; manual training, \$26.25; commercial, \$4.45.¹ The disparities to be seen here are good food for the argument in behalf of larger expenditures in the library for the slighted subjects. It would be unfortunate, however, if it were inferred that because subjects such as the sciences and the practical arts have laboratories they may be largely ignored in dealing with the library problem. These subjects also must be taught, much more than they have been, through resort to wider reading contacts.

Surveys of voluntary reading done by pupils disclose another wide field of service for the high-school library. Several of these surveys have been made, all of them showing the same relatively unsatisfactory state of the reading interests of high-school youth. Many boys and girls read no books other than those prescribed in school work. However, the majority report the reading of books voluntarily, but the books most often reported are of an ephemeral nature, the

¹ (34).

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choices having been determined mainly by the fact that the books are highly advertised or are the "best sellers" of the period. Seldom, indeed, is a book other than fiction reported as voluntarily read. The magazines reported, although not of questionable sorts, are hardly up to desirable standards. Although most pupils, especially in cities, make some contact with daily papers, the conclusion is that many ignore everything but the comic strips, the sporting pages, and the like. It is to be conceded that one might easily expect too high a standard of literature for the voluntary and recreational reading interests of youth of high-school age, but this might be conceded and still allow much room for improvement. It is an important function of the high-school library to encourage more discrimination in voluntary reading. This can be accomplished in part by having the library serve as a laboratory for courses, as already indicated, the courses being administered in some part to aim at this. But the library can and should go much farther by appealing constructively to the reading interests beyond and without relation to school requirements, in this way contributing also to the establishment of abiding and valuable reading habits.

Forms of library administration. The most frequent type of library and at the same time the best is that which is administered under the control of the board of education and which is an integral part of the high school. Another type usually satisfactory is that which is a branch of the public library, maintained for the school in the high-school building. An objection to this type arises in communities in which the librarian of the public library fails to realize adequately the peculiar needs of a high-school library. Sometimes the expense is carried jointly by the school district and the public library, as when the space, equipment, and the like are furnished by the board of education, and the books, periodicals, and supplies by the public library. In some situations the salaries of the librarians in these branches are shared by these

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two agencies of control. Occasionally the library in the school building, whether maintained by the school board or by the public library, is made to serve both high school and community. A criticism lodged against this plan is that the best service to pupils and that to the public are sometimes in conflict, it being impossible to serve both groups adequately. Another plan is for the high school to provide within the building only a minimum of references, leaving the bulk of library service to the pupils to be rendered by a public library or a branch of the public library near at hand. The trend of experience and judgment is increasingly unfavorable to this plan, the objection being that pupils do not resort to the library to the extent they should, or as much as they would if the library were in the same plant. To be used, the facilities must be at hand. However, public libraries near by can helpfully supplement the school's facilities.

Space and equipment. Provision for the library in high schools of good size should include a reading room large enough to accommodate at one time at least 10 per cent of the daily attendance of the school, a librarian's work room (which need not be large), and a library classroom to be used in giving library instruction to pupils. The reading room should be located centrally in relation to the classroom activities of the school. Experienced opinion is opposed to having the reading room used as a study hall, the preference being to have study halls immediately adjoining, opening into the reading room.

Besides books, equipment should include (1) tables three by five feet, not stationary, arranged at right angles to the wall having most windows; (2) substantial chairs without arms; (3) open shelving against all wall space, not above seven feet high; (4) a charging desk of U shape; (5) a librarian's work desk; (6) a card-catalogue case; (7) a pamphlet case; (8) a filing cabinet (for clippings); (9) a magazine stand; (10) a newspaper rack; (11) a clock; (12) a book

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truck; (13) a bulletin board; (14) decorations to assist in making this reading room one of the most attractive in the school; and other accessories.¹

On the books to be supplied in the library we can do no better than to quote from one who has written helpfully on the subject:²

... after all, it is with the books upon the shelves that our main concern must lie. The ideal here is quality not quantity, though I would have as many of the right kind as funds will permit. Ruthlessly trim out all dead timber, all unread material, in order that there may always be room for new. Unless we have unlimited money and shelf-space... let us refuse to sacrifice for sets of learned classics, respectable from age, but useless for anything save their look of dignity and propriety. Let us also refuse the reference book of university grade, no matter what tribute to our own scholarship may be paid by its presence on our shelves.... Let us have the courage, also, to refuse gifts that are useless: the edition, once valuable, that some clergyman, or lawyer, or even teacher-friend would bestow upon the library, enrolling himself by so doing among the patrons of learning, and, at the same time, clearing his own bookshelves for more valuable additions. Let us constantly remember that the library is for *use*, not *show*, and for the use of modern boys and girls, not pedants or even cultivated adults....

With the principle of *use* constantly in mind, we shall buy... the best reference books to be found, remembering that *best* for a high-school library is not necessarily the most expensive nor the most exhaustive. We shall still buy such of the classics as preserve a natural appeal for young people, or as, under the encouragement and stimulus of teacher and librarian, they may be persuaded to read.... We shall save as much as possible of our precious money for finely illustrated editions and pictures illustrative of our work.... And then we shall spend lavishly... for books on the home-reading list, for courses in English—travel, biography, novels, short stories, modern drama, and

¹ This list is drawn from Strayer and Engelhardt (9), pp. 74-75. The interested reader will find additional description of the equipment in Janet H. Nunn (20).

² Emma J. Breck (11), pp. 14-16.

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poetry — selecting many still from our own old friends . . . but many also with the strongest of modern appeal, these for the boy and girl who still go reluctantly to the library as a place interesting only for teachers and "digs."

The magazine shelves should be the joint care of the history and English departments. . . . They should be well stocked with the best weeklies and monthlies dealing with current events. The boy's interest in science and invention must be recognized; the girl's desire for a love story may be granted, if with discretion; the interest of both in other lands and other people should be aroused and developed. Exclude the cheap, the sensational, the commonplace, but subscribe generously to the best, and not only encourage but make necessary their use. . . .

One other principle of purchase for the high-school library is closely allied to that of use; indeed, the greatest service of the library depends on it: books much used, whether for class purpose or home reading, should be duplicated and reduplicated almost indefinitely, until the supply is adequate to the demand. The general public will wait a week or two at the city library for a much-advertised new book; not so the high-school boy and girl. What they want, they want at once, and if we lose the interest of the moment, we may never regain it; moreover, the work of a class on any subject under consideration is virtually impossible under the single-volume plan.

The librarian. While the concerns of the present chapter are with material aspects and not with problems of personnel, the efficiency of the high-school library is so dependent on the librarian in charge that brief treatment at least must be accorded her. This will be accomplished by a further extract from the article from which quotation has just been made:¹

No modern library, no matter how fine the room, nor how excellent the book-collection, is complete without the trained librarian, and it is even more true of the school than of the city library. . . . The work demands not only careful but broad scholarship. A mere high-school education plus even the most

¹ Breck (11), pp. 16-17.

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thorough technical training is not enough. We must have not only the librarian, able to buy and to catalogue, to issue, and to keep a record of books lent, but the teacher-librarian, with an intelligent knowledge of all courses in the school, able to direct to all sources of information desired, competent, if necessary, to supervise the preparation of reports and special studies, cultured enough to make her library a place of refinement and inspiration. Moreover, she must have a strong yet winning personality, be able to command respect and therefore to keep the library a laboratory for work; at the same time she must be one who attracts students to her and what she has to offer by her sympathy, encouragement, and power to interest and inspire. No other position in the school offers such possibilities for universal service; no other makes greater demands upon her who fills it. I hope the day is near when the high school will demand this finest type of highly trained librarian, and recognize her value by an honored place in the faculty and a salary equal to that of other teachers.

Enhancing the usefulness of the library. Merely to provide satisfactory facilities and an efficient librarian is not enough. Further steps should be taken to enhance the usefulness of the high-school library. Among these are the provision of library instruction and the encouragement of coöperation by teachers and pupils. A good many schools are giving instruction to pupils in the use of the library and its books. This is often done in connection with the courses in English, the lessons usually being given by the librarian. Illustrative of this instruction are the fifteen lessons outlined in the syllabus in English in use in the high schools of Minnesota. Ten of these lessons on the "use and appreciation of books and libraries" are to be given during two consecutive weeks in the first semester of the ninth grade and the remaining five, which are adapted to the pupil who is at a more advanced level of training, to be given in the same semester of the eleventh grade. These lessons are as follows: ¹

¹ (XII) (22), p. 90.

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NINTH GRADE

Lesson I. The Library.

- II. The Book.
- III. Reference Books: Dictionary.
- IV. Reference Books: Encyclopedia and Atlas.
- V. Reference Books: Yearbooks, Handbooks, and Reference Books on Special Subjects.
- VI. Other Reference Aids: Classification and Shelf List.
- VII. Other Reference Aids: Catalogue.
- VIII. Other Reference Aids: Magazines, Readers' Guide, Information File of Pamphlets, Clippings, and Pictures.
- IX. Books and Reading.
- X. Summary.

ELEVENTH GRADE

Lesson I. Newspapers, Magazines, Readers' Guide, and Special Indexes.

- II. Reference Books, Public Documents, and Other Publications.
- III. The Eleventh-Grade Project — a brochure.
- IV. Debating.
- V. The Student's Personal Library.

The need for teacher coöperation in bringing the library to a high state of usefulness is so manifest as to require no special effort to justify it. At its best this coöperation calls not only for an informed appreciation of the relationships between library service and efficient teaching in the subjects taught (an appreciation not attained without careful study and experimentation) but also for vigorous and persistent effort to effect the desired relationships.

Pupil coöperation, properly stimulated, may take a variety of forms. Examples are a "Library Day," a "Student Library Board," and the institution of a pupil-page service in the library. The first of these was an event launched in a school with a library inadequately supplied with books. Early in the school year a date in the following spring was set to be observed as the library day, at which time there was

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to be an assembly program devoted to the library and to the significance of books. The program was mostly contributed by pupils, but it also included a brief address by the specialist assigned to children's reading in the public library of the city. The major event of the day was the gift of one book by each pupil; the teacher in charge had previously prepared a list of desirable books from which the pupils selected their gifts. The list, while including beautiful editions of well-known classics, had been made to include also inexpensive but acceptable editions of desirable books, so as to avoid embarrassment of pupils coming from less well-to-do homes. As conducted, with almost the full school year of anticipation, the event was exceedingly helpful in establishing in the pupils a constructive attitude toward books and libraries. The student library board has been reported by Hargreaves as a help in bringing the library to the pupils in the North Central High School of Spokane.¹ To develop in the pupils a feeling of ownership, all matters pertaining to order and discipline were placed in the hands of a board of eleven elected from the three upper classes. In the Reynolds Memorial High School in Winston-Salem, North Carolina, a pupil-page service has been developed, invitation to which is regarded as an honor by the pupils. The almost thirty pupil pages constitute one of the important extra-curricular organizations of the school.

III. THE COST OF SECONDARY EDUCATION

The problem of costs. Finally, we come to the consideration of the financial outlay for secondary education. The expenditures for education on this level in this country have already mounted to proportions equaled nowhere else in the world. If the aim of further democratization of secondary education reflected in earlier portions of this book is to be fulfilled, we are far from having reached our maximum burden of cost for

¹ R. T. Hargreaves (16), p. 731.

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this service. The very magnitude of our undertaking should prompt us to an interest in its fiscal aspects. But there are other grounds for studying these costs, such as considering the adequacy or inadequacy of the provisions in particular localities, scrutinizing the distribution of expenditures with a view to securing the largest educational service, and developing an appreciation of the trust laid upon those who — whether as board members, superintendents, principals, teachers, pupils, or parents — have to do directly or indirectly with the use of public resources assigned to secondary education.

Annual costs per pupil. Costs of high-school education have been computed on various bases. One of the most frequent and at the same time most useful units is the annual cost per pupil obtained by dividing the total cost for current expenses in a high school by the number of pupils in average daily attendance. Partly because it is easily computed, but also because some special interest attaches to it, the annual teaching cost per pupil in average daily attendance is frequently reported. The first illustration given here, pertaining to high-school costs in the state of New York in 1920–1921 as worked out by Hunt, is of both these unit costs in municipalities of different populations (see Fig. 94). The total annual cost per pupil for current expenses (that is, not including capital outlay) is seen to have been \$126 in communities with populations ranging between 2500 and 5000 and approximately the same in communities of 5000 to 10,000. The proportion which the cost of teaching is of the total cost for current expense in each population group in the figure is approximately two thirds.

Median annual costs for all current expenses for one of our westernmost states, California, in 1921–1922, from data reported by Sears and Cubberley, are presented in Fig. 95. The grouping of high schools in this instance is by size of teaching staff. The costs are notably larger than for high

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schools in New York. They are seen to decrease as the number of teachers increases. There are, of course, states in which the cost per pupil is much lower than in either New York or California.

Since these illustrative data suggest a significant relationship between the annual cost per pupil and the size of the

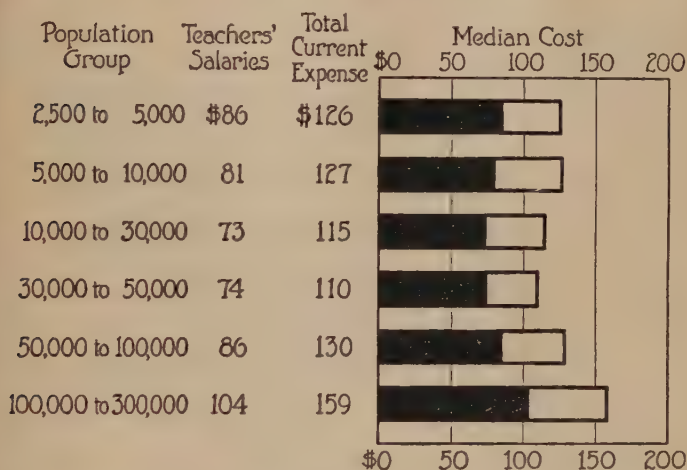


FIG. 94. Median annual cost per pupil in average daily attendance in 1920-1921 in secondary schools in the state of New York, for teachers' salaries and for total current expenses. (Black, teachers' salaries; black and in outline combined, total current expenses.) (From Charles W. Hunt (32), p. 50)

high school, it is pertinent to draw further from Hunt's investigation. In this instance our interest is in the median annual cost per pupil for total current expenses for high schools grouped by size of enrollments. These costs, already referred to in Chapter VIII, are as follows: in schools with an average daily attendance of 1 to 25, \$205; 26 to 50, \$144; 51 to 75, \$134; 76 to 100, \$118; 101 to 150, \$118; 151 to 200, \$117; 201 to 250, \$114; 251 to 300, \$112; 301 to 350,

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\$113; 351 to 400, \$118; 401 to 450, \$123; 451 to 500, \$115; 501 to 1000, \$118; 1000 and over, \$141. The smallest attendance shows the highest costs. The cost decreases until an attendance of 300 is reached, after which increased attendance brings higher costs per pupil. The higher cost in smaller schools obtains in spite of lower salaries paid to teachers.

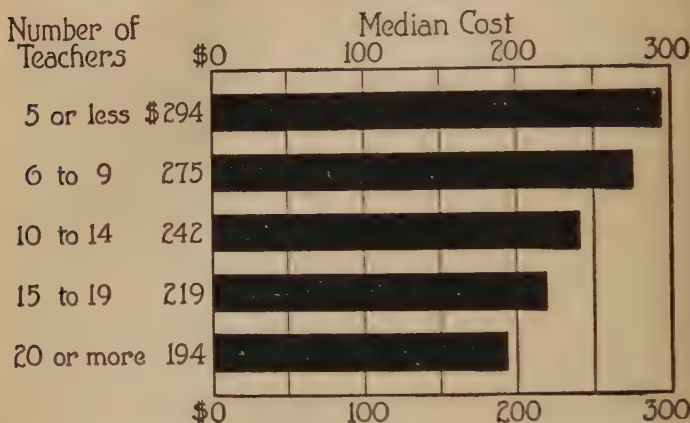


FIG. 95. Median annual cost per pupil in average daily attendance in 1921-1922 in high schools of California for total current expenses. (From Jesse B. Sears and Ellwood P. Cubberley (39), p. 175)

The cost of transportation in consolidated districts came up for consideration in Chapter VIII in the treatment of the problem of rural secondary education.

Expenditures for current expense (covering instruction, operation and maintenance, general control, etc.), as reported, do not include what is referred to as "capital outlay," that is, the cost of plant and permanent equipment and furnishings. This is an important element in the total outlay for schools. For example, Sears and Cubberley, in the study from which data pertaining to cost have already been quoted, show that for 1922 the value of California

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high-school property per pupil in average daily attendance was \$522. It had risen to this figure from \$402 in 1914. One may look upon this outlay in at least two ways, either as a community investment or as long-time educational service. In considering it as an investment it is often assumed that when there is no indebtedness for the plant, members of the community are being deprived of the annual income from interest (say, in this instance, of 5 per cent of about \$500, or \$25, for each pupil in average daily attendance) — interest which would have accrued to them as individuals had no investment in school property been made. Obviously, if instead of being paid for, the value of property is covered by bonded indebtedness with interest at 5 per cent, the community makes the actual outlay of \$25 per pupil to pay the interest charge. According to this conception the \$25 may be appropriately added to the annual cost for current expenses to arrive at a total annual cost. When regarded in the second way, as another type of educational service extending over the period of life of the property, the value per pupil would be divided by the number of years the property can be used. If in this instance the duration of use of the property should be forty years, and there were no indebtedness on which interest must be paid annually, the annual cost for this item would be about \$12.50. The first of these conceptions is the one more commonly held, but the second appears the more plausible.

Communities sometimes incur questionably large bonded indebtedness for high-school buildings, the annual interest on the indebtedness running higher than fifty dollars per pupil, sometimes even higher than a hundred.

Annual costs in other units in the school system. The ratio of elementary-school costs to high-school costs is a variable one. Morrison showed that for ten cities in Illinois, operating with eight years in the elementary school and four years in the high school, the elementary-school costs per pupil

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ranged between 46 and 71 per cent of the corresponding high-school costs, with the median at 60. The percentages were smaller in districts where the high schools were under control of separate boards. The same study included two systems having the junior-high-school reorganization. In one of these the cost per pupil in junior high schools was 85 per cent, and the cost per pupil in the elementary school 49 per cent, of the cost in the senior high school. In the other the corresponding percentages were 63 and 52.¹ Costs in the junior high school range between those for the elementary and senior units, often so near the former as not to be reassuring as to the extent and quality of the reorganization effected. Costs are low because there is little departure from practices in corresponding grades of the conventional organization, because the schedule of salaries does not approach that of the senior high school, or because classes are larger than in the upper unit. If these conditions should persist over a long period in any community, there is ground for the suspicion that the reorganization is half-hearted rather than thoroughgoing.

The writer has reported elsewhere the annual teaching cost per student in public junior colleges.² For fifteen institutions these ranged between \$83.26 and \$223.54, with the median junior college at \$117.48. Assuming that an adequate salary schedule in an institution of good size would place this cost at \$125, and allowing about \$40 to \$50 for other current charges, an acceptable cost per student per year for all current expenses would run from \$165 to \$175. Smaller enrollments and higher salary schedules would send the cost above this estimate, which lies somewhere between the highest median high-school cost reported above for cities in New York and the lowest of the median high-school costs reported for California.

¹ From data presented in Henry C. Morrison (36), p. 134, Table XXIX.

² Koos (VII) (26), pp. 393 ff.

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Student-hour costs. A number of units other than the annual cost per pupil have been used in investigating the costs of secondary education. There are other large units, like the annual cost of teaching a subject (for example, English or mathematics) to a pupil. There are also the smaller units, such as the cost of a pupil-recitation; that is, the cost of teaching one pupil during one class period. Another, to be illustrated here, is the student-hour cost; that is, the cost of teaching a pupil during one clock-hour of sixty minutes. This unit, in common with other units just referred to, makes possible the comparison of costs in different subjects and subject groups. The method of computing the cost of this unit may be explained by the illustration of a teacher responsible during one semester for five classes in mathematics in a high school in which this is the standard teaching load. The teacher's annual salary being \$2000, the cost of teaching these five classes is \$1000. Assuming a total of one hundred and twenty pupils in the five classes, and five periods of instruction each week for the twenty weeks in the semester, the total number of periods all pupils are in attendance is $120 \times 5 \times 20$, or 12,000. With periods forty-five minutes in length, this is a total of nine thousand "student-hours" of instruction. By dividing \$1000 by this total, the cost is found to be 11.1 cents per student-hour. Where a teacher's time is devoted to more than a single subject, corresponding fractional portions of the salary are allocated to each in the computation. Although the actual procedure in computation used by the investigators is not identical with this explanation, the exposition being simplified for the sake of brevity, the principles underlying both may be understood to be the same.

An investigation computing unit costs on this basis, some findings of which are here used illustratively, is that by Delt R. Henry pertaining to high schools in Chicago. Additional interest is provided in the fact that costs were com-

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puted for two school years eight years apart, disclosing large differences in costs for the two periods. If we turn our attention first to the costs per student-hour for the subject groups (see Fig. 96) for the more recent period, we find that the cost for English (12.1 cents) was not far from

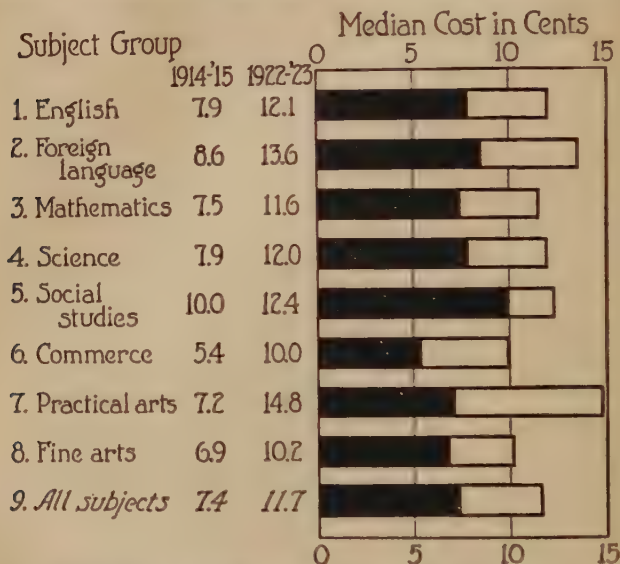


FIG. 96. Median cost (in cents) of teaching per student-hour in twenty-two high schools of Chicago in 1914-1915 and 1922-1923 in certain subject groups. (Black, in 1914-1915; black and in outline combined, 1922-1923.) (From Table I, pp. 14-28, of Delt R. Henry's "Student-Hour Costs of Instruction in Twenty-two Chicago High Schools" (a master's thesis on file in The University of Chicago, 1925); see also (31))

that for all subjects (11.7 cents). The cost for foreign language (13.6 cents) was larger, being second to that for practical arts (14.8), which was the most expensive subject in 1922-1923. The least expensive group was commerce, and between this group and those already named lay mathematics, science, the social studies, and the fine arts.

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Since there was a good deal of variation from subject to subject within the groups, the costs for several of these are shown in Fig. 97. Because of the disfavor into which German has fallen, the small classes in this language make for the highest among unit costs listed in the figure. Home economics (probably because of restrictions on the size of classes, fixed by the number of pupils for whom equipment is available) is the next most expensive subject in the list, being followed closely by French, chemistry, and shop work. The subject with the lowest cost is music, chiefly because of the larger classes enrolled in it. In endeavoring to account for the differences among the costs reported the reader should beware of inferring that they are brought about by differences in the cost of equipment and supplies, since only teaching cost has been introduced in the computations.

Most readers know of the increased cost of education in recent years, which accounts for differences shown in Figs. 96 and 97 for the two school years represented. The difference in median costs for all subjects is that between 7.4 cents and 11.7 cents, an increase of almost three fifths of the cost in the earlier year. Henry, in explaining the increase, shows that the average salary for a semester in the interval had increased from \$904.06 to \$1471.34, an increase somewhat in excess of three fifths. At the same time the average size of the class groups had increased from 28.7 pupils to 30.3 pupils, and the average teaching load in periods per week had decreased from 29.3 to 28.7.¹ These two shifts were such as to make for a small decrease and a small increase, respectively, in unit costs. Without doubt, as Henry concludes, the increase in salaries is the dominant influence in the actual increase in unit costs.

Proportionate distribution of expenditures to different subjects. Before turning to a brief résumé of the factors determining such unit costs as have been illustrated, it is worth while to refer to another type of study of expenditures in secondary

¹ Henry, p. 48.

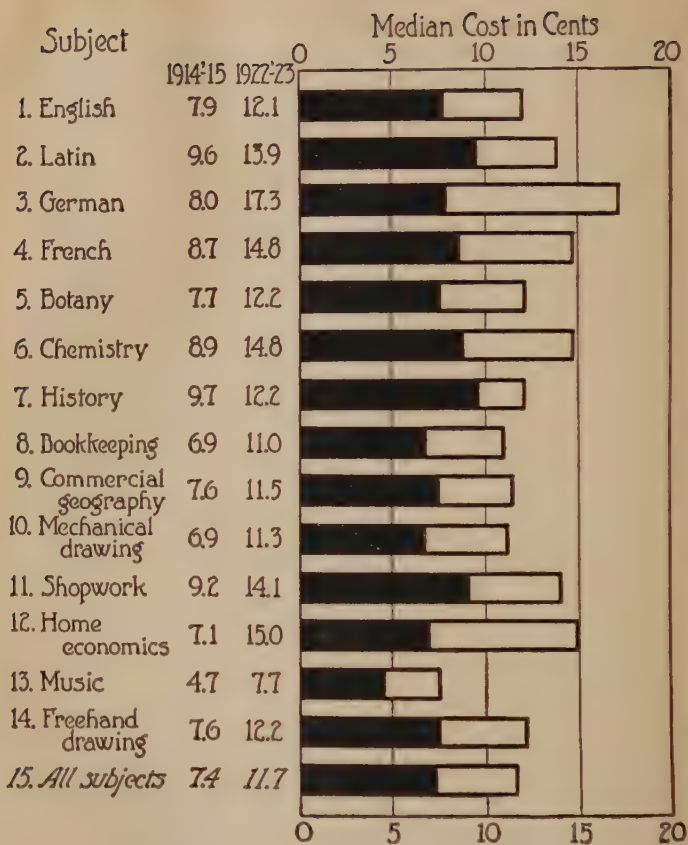


FIG. 97. Median cost (in cents) of teaching per student-hour in twenty-two high schools of Chicago in 1914-1915 and 1922-1923 in certain subjects. (Black, 1914-1915; black and in outline combined, 1922-1923.) (From Table I, pp. 14-28, of Henry's "Student-Hour Costs of Instruction in Twenty-two Chicago High Schools" (a master's thesis on file in The University of Chicago, 1925); see also (31))

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education, one which shows the proportionate distribution to the different subjects and subject groups of funds paid for teaching service. The method is simply that of (1) charging to each subject that portion of each teacher's salary which is devoted to it, this amount being determined by the fraction of his teaching schedule given to the subject, (2) totaling all amounts for each subject thus found, and (3) computing the proportion which this is of the total expenditure for teaching in the school or group of schools. The proportions have usually been stated as so many dollars in each \$1000, but they might just as conveniently be put in per cent. This method of studying expenditures has the advantage of being in a sense a test of the philosophy of education at work in a given situation.

The illustrations presented in Table LIII are quoted from studies reported by Wilcox for high schools in South Dakota and in Des Moines, Iowa. The data are for 1917-1918 and, in view of shifts in emphasis from period to period, cannot be assumed to be fully representative of the present time. The high schools in South Dakota were distributed to three classes: (I) those with enrollments of 113 and larger, (II) those with from 50 to 112 pupils, and (III) those with from 1 to 49 pupils. Three high schools of Des Moines are represented. The proportionate expenditures are seen to be different for each of the groups of high schools, as may be found by reading across the four columns for any subject or group of subjects. Interesting results arise by adding the amounts in each column for certain larger subject groups. For example, the totals for the first six subjects in the four columns are, respectively, \$662, \$756, \$879, and \$633 of every \$1000. From this one may conclude that the small high schools emphasize the academic subjects even more than do the larger high schools. The same conclusion may be drawn for foreign language (subjects 2 and 3), for which the totals are, respectively, \$114, \$128, \$194, and \$119. The totals for the vocational subjects and practical arts (subjects 7-11) are \$287, \$224, \$118, and

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\$306. The fine arts (other than literature) and physical education came in for only minor recognition in the working philosophies of secondary education in these communities in the period considered.

TABLE LIII. AMOUNT IN EACH \$1000 EXPENDED FOR INSTRUCTION SPENT FOR EACH SUBJECT OR SUBJECT GROUP IN SOUTH DAKOTA AND DES MOINES IN 1917-1918 ¹

SUBJECT	SOUTH DAKOTA I	SOUTH DAKOTA II	SOUTH DAKOTA III	DES MOINES
English	\$160	\$158	\$175	\$195
Latin	63	74	94	57
Modern foreign language	51	54	100	62
Mathematics	127	166	178	132
Science	163	148	156	93
History and other social studies	98	156	176	94
Commerce	89	28	37	168
Manual arts	92	85	26	71
Home economics	86	78	30	67
Agriculture	11	—	10	—
Teacher training	9	33	15	—
Music	13	20	3	3
Art, drawing	4	—	—	22
Physical education	34	—	—	36

The factors of teaching costs. One may infer from the illustrative treatment of unit costs that a number of factors are influential in determining them. Among these are the size of enrollment or attendance of the high school, the size of the class, the teaching load (as measured by the number of periods per day or per week assigned to each teacher), the salaries of teachers, the subject, and the spread of the curriculum or offering. It may be judged that the first and the second of these (that is, the enrollment or attendance and the size of classes) are highly correlated, since the first, other things being equal, is certain to be markedly reflected in the second. Up to an enrollment or attendance of approximately

¹ George M. Wilcox (43), Tables V and IX.

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three hundred in the actual school situation these factors appear to be much more influential than any others. This may be inferred from the data on annual costs per pupil cited above from New York. It is shown also by White¹ in a study of costs per pupil-recitation for high schools in Washington. The cost for this type of unit is shown to decrease from the smallest high schools up to those enrolling about three hundred pupils, when it takes an upward turn. It may be correct to infer that the higher costs in the larger schools are attributable to better salaries, to somewhat lighter teaching schedules, or to both these factors. The subject is for the most part only indirectly a factor in determining unit costs, since such differences as are found among the subjects can usually be accounted for by variation in size of class, salaries, or teaching schedule. Differences in costs owing to the range of offering are also largely related to enrollment or attendance, to size of class, or to other factors already mentioned.

No extended contemplation of costs or of the factors determining them is required to disclose their close relation to the financial efficiency of a high school or system of secondary schools. Educational considerations are, of course, paramount, but even these demand that account be taken of the financial aspects of the whole problem of secondary education. To illustrate only, reference may be made once more to the high unit costs in small schools and to the urgency of avoiding in a state or other system an undue proportion of undersized institutions. The desirability of such a policy was discussed in Chapter VI, in which data were presented showing the undue proportion of small high schools. Again, with the size of class highly influential in determining costs, there is raised the question of the proper size of class groups for most efficient instruction, a question just now to the front in school administration. In the light of the expansion of secondary education which we have experienced in

¹ R. J. White (42).

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recent decades and of the continued expansion which seems to be ahead, class groups will need to be kept as large as is consistent with the achievement of all essential educational values. It does not appear unlikely that investigation will shortly demonstrate the feasibility, with all vital interests conserved, of increasing the size of class groups beyond the numbers traditionally approved, at least in some kinds of school work.

Our willingness and ability to pay for the expanding program. Finally, when we consider the financial responsibilities involved in our secondary-school program, there arises again the question Should we go forward with it? which obtruded itself in the first chapter (p. 14). Among recent writers who have put this question and essayed an answer to it is Judd. He raises the question in connection with a citation of the increase in costs for public elementary and secondary education between 1910 and 1920: while elementary-school costs increased by 112 per cent, high-school costs increased by 371 per cent, totaling two hundred and forty millions in 1920. Specifically, Judd's question is How far will the public tolerate such a disproportionate increase in expenditures for high schools? He points out that "there are some people who believe . . . that the American plan of a free high-school education for all comers must be abandoned." His answer on the score of the American's willingness is partly in the nature of rhetorical questions:¹

Is there anyone who seriously believes that American communities are going to put an end to these expansions? Can anyone imagine the members of a city council or a mayor saying that they will stand for reelection on a platform of abandonment of the high schools? Is there a social reformer who will try to convince American families that their boys and girls will fit into the industrial scheme better if they are given as meager an education as the law will permit?

¹ Judd (33).

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Of course, there is no one who will try to stem the tide. The high school is here, and it is expanding at an astounding rate. It is costly and is about to cost more. The problem is not how to curtail it or how to contract its operations. The real problems are of a wholly different order.

The problems listed are those of obtaining support from sources other than taxes on real property only, of eliminating waste of various kinds, and of exhibiting "clearly to the people of the United States the reasons why the American high school costs so much. It is my firm conviction that they will see that there is a public return in the broadest sense from this democratic expenditure of public funds. If they are convinced, I believe that they will gladly pay more liberally in the future than they have in the past for free high schools." ¹

While considering the problem of willingness and ability to pay for the expanding program of secondary education — more especially the ability — it is pertinent to quote from a brief treatment by Seligman of the general problem of financing the rising costs of education. This authority, referring to a "present educational embarrassment" of a financial sort, points to two types of remedy, one economic and the other political. The first has to do with the development of a fiscal system responding to modern needs, tapping the resources of the community according to the relative ability of individuals to pay, which is no longer to be measured by general property assessments; the second concerns relinquishment of local sources as almost the sole sources of school revenues, and the substitution in larger part of state sources. Seligman's conclusion is that "the wealth is here; the educational needs are here; all that is necessary is to bring about a correlation between the two." ²

If it should turn out — an eventuation hardly to be expected — that the American people are unwilling or unable

¹ Judd (33).

² Edwin R. A. Seligman (40).

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to finance the expanding program, there would need to be a profound revision of our American philosophy. A recasting of this philosophy would be called for not merely in its educational phases but also as touching all our political and social conceptions. Our aspirations to a truly democratic society are posited on a popularization of intelligence which is not to be achieved through a system of free schools limited to what we think of as elementary education: it requires the training of almost the whole population above the traditional common-school level. For the nation to admit unwillingness or inability to afford this higher training would be tantamount to abandonment of our democratic convictions. Long before these would be abandoned we should find our people prepared to make serious sacrifices to maintain them.

QUESTIONS AND PROBLEMS

1. Discuss the need for a site of at least ten acres for a high school of a thousand pupils.
2. Check the provisions for space in some high-school building or junior-high-school building against the list provided in Table LII.
3. What provisions for space are to be found in the floor plans of the senior high school in Dubuque not made in the junior high school in Pontiac?
4. Score a high-school building by means of the Strayer-Engelhardt standards as given in Reference (9) below.
5. Make a study of the use of space in some high-school building by the method followed by Packer as referred to above.
6. To what subjects is multiple use of classrooms applicable?
7. Plan library facilities for a small high school of four teachers and from seventy to eighty pupils.
8. How should a high-school staff go about it to increase the library facilities?
9. How is the librarian to know the needs of classroom work?

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10. What are the pros and cons of combining the study hall with the library reading room?
11. What are the standards for high-school libraries in your state?
12. Inquire into costs per pupil in some particular high school or state system of high schools.
13. What are the factors of cost that make high-school costs per pupil greater than elementary-school costs?
14. What justification is there for higher costs per pupil in secondary schools than in elementary schools?
15. Make a study of expenditures for some high school by the method used by Wilcox (p. 731) and compare the results with his figures.

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APPENDIXES

A. LINES ALONG WHICH STANDARDS HAVE BEEN SET FOR THE CLASSIFICATION OF HIGH SCHOOLS AND THE NUMBERS OF STATES SETTING THE STANDARDS ¹

STANDARDS PERTAINING TO	NUMBER OF STATES
1. Length of term required	40
2. Amount of work which must be offered (4 years)	13
3. Length of recitation periods	39
4. Number of subjects a pupil may carry	21
5. Minimum requirements for graduation (in amount)	36
6. Unit of credit defined	33
7. Records to be kept	32
8. Supervision of the school (in time of school head)	13
9. Requirements as to elementary school in the district	16
10. Admission requirements for pupils	15
11. Number of teachers required	41
12. Maximum number of pupils in a class	17
13. Minimum number of pupils in a class	4
14. Teacher-pupil ratio	14
15. Teaching load in recitation periods	35
16. Number of pupils required	15
17. Program of studies	39
18. Courses required for graduation	26
19. Preparation of teachers	39
20. Preparation of principal or superintendent	11
21. Miscellaneous provisions concerning the administration of the school	39
22. Site	12
23. Location	11
24. Building (general)	28
25. Heating	20
26. Lighting	26
27. Water	16
28. Toilets	18
29. Ventilation	18
30. Cleaning	12
31. Corridors and halls	7

¹ Introduced through the courtesy of Dr. Oliver L. Troxel, School of Education, Municipal University of Wichita, Kansas.

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STANDARDS PERTAINING TO	NUMBER OF STATES
32. Recitation rooms	14
33. Assembly room	7
34. Commercial rooms and shops	9
35. Gymnasium	3
36. Science, home economics, and other special rooms	11
37. Seating and equipment (general)	28
38. Laboratories	24
39. Laboratory equipment	29
40. Library standards	42

B. STANDARDS FOR ACCREDITING SECONDARY SCHOOLS OF THE NORTH CENTRAL ASSOCIATION OF COLLEGES AND SECONDARY SCHOOLS

(Adopted March 20, 1926)

STANDARD 1. BUILDINGS

The location and construction of the building, the lighting, heating and ventilation of the rooms, the nature of the lavatories, corridors, closets, water supply, school furniture, apparatus, and methods of cleaning shall be such as to insure hygienic conditions for both pupils and teachers.

STANDARD 2. LIBRARY AND LABORATORIES

The library and laboratory facilities must be adequate to meet the needs of instruction in all courses offered. The library should be classified and catalogued, and an annual inventory should be made of laboratory and shop equipment.

STANDARD 3. RECORDS

Accurate and complete records of attendance and scholarship must be kept in such form as to be conveniently used and safely preserved.

STANDARD 4. REQUIREMENTS FOR GRADUATION

No four-year high school that does not require fifteen units or more for graduation and no three-year high school that does not require eleven units or more for graduation shall be accredited.

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The school year shall consist of a minimum of thirty-six weeks. The minimum length of a recitation period shall be forty minutes, exclusive of all time used in changing of classes or teachers.

A unit course of study in a secondary school is defined as a course covering an academic year that shall include in the aggregate not less than the equivalent of one hundred twenty sixty-minute hours of classroom work — two hours of shop or laboratory work being equivalent to one hour of prepared classroom work.

STANDARD 5. INSTRUCTION AND SPIRIT

The efficiency of instruction, the acquired habits of thought and study, the general intellectual and moral tone of a school and the coöperative attitude of the community are paramount factors, and therefore only schools that rank well in these particulars, as evidenced by rigid, thoroughgoing, sympathetic inspection, shall be considered eligible for the list.

STANDARD 6. SALARIES

No school shall hereafter be accredited whose salary schedule is not sufficient to command and retain teachers whose qualifications are such as required by this Association. The interpretation of this requirement shall be a matter of special responsibility for the State Committee.

STANDARD 7. PREPARATION OF TEACHERS

All schools accredited by the Association shall maintain the following standards respecting teachers:

a. The minimum attainments of a teacher of any academic subject, and of the supervisors of teachers of such subjects, shall be equivalent to graduation from a college belonging to the North Central Association of Colleges and Secondary Schools. Such requirements shall not be construed as retroactive.

b. The minimum professional training of a teacher of any academic subject, and the supervisors of teachers of such subjects, shall be eleven semester hours in education. After September 1, 1925, this requirement shall be fifteen semester hours in education. This additional requirement shall not be construed as retroactive.

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The Association recommends the following types of courses as meeting the spirit of this standard: educational psychology, principles of secondary education, theory of teaching, special methods in subject taught, observation and practice of teaching, history of education, educational sociology, and school administration and supervision.

c. It is recommended that as far as possible, teachers be assigned according to their major subjects in collegiate preparation.

STANDARD 8. THE TEACHING LOAD

Some factors conditioning the efficiency of instruction are

1. The pupil-teacher ratio as shown by the average daily attendance.

2. The number of classes taught by the teachers.

3. The number of student hours per teacher.

The Association recommends the following as norms:

1. Pupil-teacher ratio — 25 to 1.

2. The number of classes taught by the teacher — 5 daily.

3. The total number of pupil-periods per day — 150 per teacher.

An average enrollment in the school in excess of thirty pupils per teacher shall be considered as a violation of this standard. For interpreting this standard the principal, vice-principals, study-hall teachers, vocational advisers, librarians, and other supervisory officers may be counted as teachers for such portion of their time as they devote to the management of the high school. In addition, such clerks as aid in the administration of the high school may be counted on the basis of two full-time clerks for one full-time teacher.

STANDARD 9. THE PUPIL LOAD

Four unit courses, or the equivalent in fractional unit courses as defined in Standard 4, shall be considered the normal amount of work carried for credit toward graduation by the average or medium student. It is advised that only such students as rank in ability in the upper 25 per cent of the student body may be allowed to take more than four units for credit. A different practice in the school must be explained to the State Committee.

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STANDARD 10. THE PROGRAM OF STUDIES

The association recommends that three units in English, two units in Social Science, one unit in Biological Science or one unit in General Science, and one unit in physical education or health (with or without credit) be required for graduation for all students in the four-year high school.

It further recommends the introduction of vocational subjects such as agriculture, manual training, household economics, and commercial subjects into schools where local conditions render such introduction feasible. The Association will hold that a sufficient number of qualified teachers must be provided to care adequately for all instruction offered. No new school will be accredited with less than five full-time teachers of academic subjects, each of whom will teach in the field of his or her major or minor specialization in collegiate preparation.

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